

*Australian*

**micro**  
**COMPUTERWORLD**

APRIL 1984

\$2.50\*

**EXCLUSIVE!  
DISK OFFER**

# 'NO FRILLS' ACCOUNTING

## Nine Accounting Packages Reviewed

**Survey: Multi-User Mania**  
**TI Professional Review**  
**PC 84 Show**



Select A Function

OK

Cancel

**WIN  
APPLE'S  
MAC**



**PAGE 64**

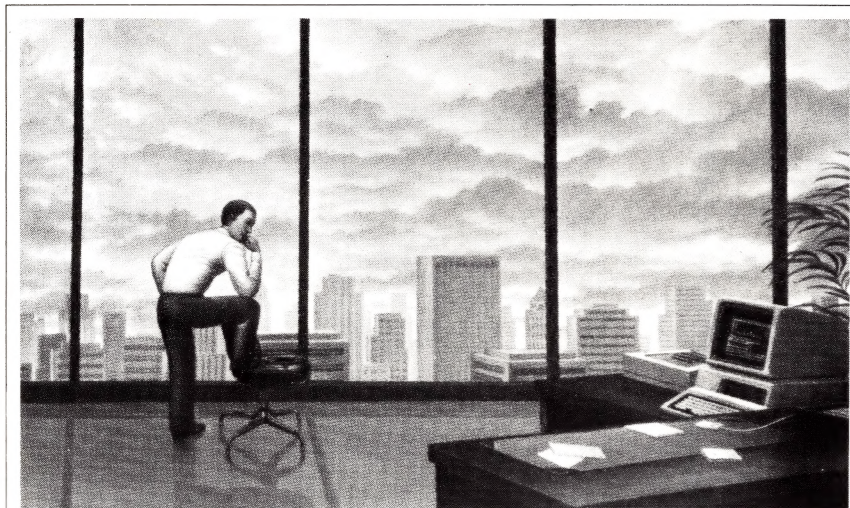




IMAGINEERING™

# INTRODUCES VISI ON.™

(Just when you and your computer were about to call it quits, help arrives.)



**T**here's a problem here. And it's not you. The personal computer promised to take the work out of work. It would do your job faster, make life easier, send you home happier.

It would do the heavy lifting. You would do the heavy thinking. Alas, reality fell short of the dream.

For every solution wrung out of it, the personal computer created more problems. Each software program took days, weeks (sometimes classes) to learn. There was no way for individual programs to talk to each other. No way to take data from here and transfer it to there.

The computer refused to do things the way

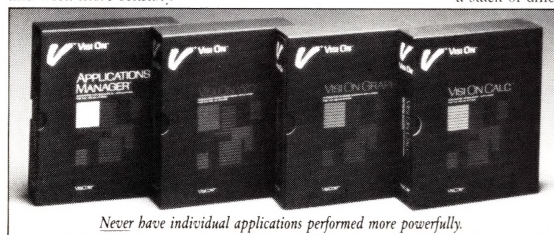
you like to do them. Refused to juggle lots of jobs at once. Refused to move swiftly from project to project.

Refused, even, to understand simple English.

The machine that promised to be your partner in a new era of productivity has behaved like a renegade two-year-old.

## VISI ON—Suddenly, your personal computer becomes the partner you always dreamed it would be.

Visi On is a completely new generation of business software that does what no computer or program has ever done. It makes the personal computer work harder, work easier, and work more sensibly.



Never have individual applications performed more powerfully.

How? By *managing* the computer. By making it work the way *you* are accustomed to working.

Think of Visi On as a "boss" who instructs the computer on how to deal with the specific applications you want to work with: Visi On Calc™, an electronic spreadsheet; Visi On Word™, word processing; Visi On Graph™, business graphics; and Visi On Query™, relational database. Since all these applications work for the same boss, they all work the same way. Learn to use one, and you've essentially learned to use them all.

Working under Visi On, each application becomes the best you ever worked with, no matter which one you choose.

Moreover, the strength of each application is boosted when they are *combined*.

Indeed, Visi On demonstrates its true genius whenever you

want to do a number of things at once.

Going from a database to a spreadsheet to business graphics on a computer before now required rifling through a stack of different program disks and a bookcase full of instruction books.

But with Visi On, *each application can talk to the other*. You're free to transfer words, numbers, formulas, even entire charts, from one place to another. Noodle, fix, futz: change your mind to your heart's content.

No fumbling floppy disks. No forgetting instructions.

Just analyze, experiment, refine, decide, and move forward.

**If it were any friendlier, it would be illegal.**

Applications appear on the screen as windows, representing workspaces.

To open a window, you point a hand-held pointer called a "mouse."

It's simple to learn, and even easier to use.

As you slide the mouse along your desk, the cursor follows on the screen. Two buttons on the mouse control your options. There are only a

few basic commands, and they remain in plain sight at all times.

Should you see a problem, point your mouse at it. A special Visi On Help window opens on the screen. Having anticipated the question you were going to ask, Help starts off with the most probable answer.

There. Your computer has become a sweetheart: as cooperative, as productive as it promised it could be.

Freeing you to think about lunch.

**Reviewed, tested, and heralded, VISION is now something you can have.**

Yes, Visi On works on the IBM® XT personal computer. Visi On works on almost any computer, including the one you now own and aren't speaking to.

Visi On is also open-ended, so you're free to add, as needs arise, new applications. Ours or others. Including a new communications system which will soon allow you to transfer information not only between applications, but between other personal computers, local networks, outside databases, and your company's mainframe computer.

See your Authorized VisiCorp™ Dealer or sales rep for a hands-on demonstration and information on our comprehensive support program.

And note one more way we ensure that your investment is never at risk: Receive your original purchase price (minus a new materials charge) for VisiCorp software you now have, in trade for its Visi On equivalent.

You see, you're buying Visi On from VisiCorp, the leading maker of business software. No one makes more useful, more powerful software, either (just ask over a million people now using VisiCalc™).

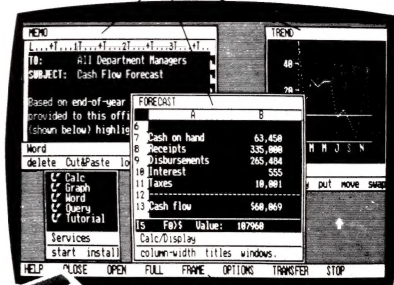
And no one supports it better.

Finally, your computer will be everything you always expected it to be.

Visi On will never let it be anything less.



Visi On windows allow you to transfer data freely and at top speed, demonstrating depth of integration to an unprecedented degree.



The menu of simple commands. Always at the base of the screen, they work with any application.

No ordinary mouse, nor add-on, nor afterthought. Visi On applications were designed to take maximum advantage of this remarkable device.

Visi On, Visi On Calc, Visi On Word, Visi On Graph, Visi On Query and Visi On Calc are trademarks of VisiCorp, San Jose, CA. IBM is a registered trademark of International Business Machines Corp. © 1983 VisiCorp.

IMAGINEERING P.O. BOX 558 BROADWAY 2007 TEL: (02) 212 1411

Visi On is available now from Myer and Grace Bros Business Centres, A.C.I. Computer Services and all fine IBM Microcomputer Dealers.

Enter S013 on Enquiry Card



# THE AFFORDABLE HIGH PERFORMANCE PLOTTERS - FROM ROLAND.

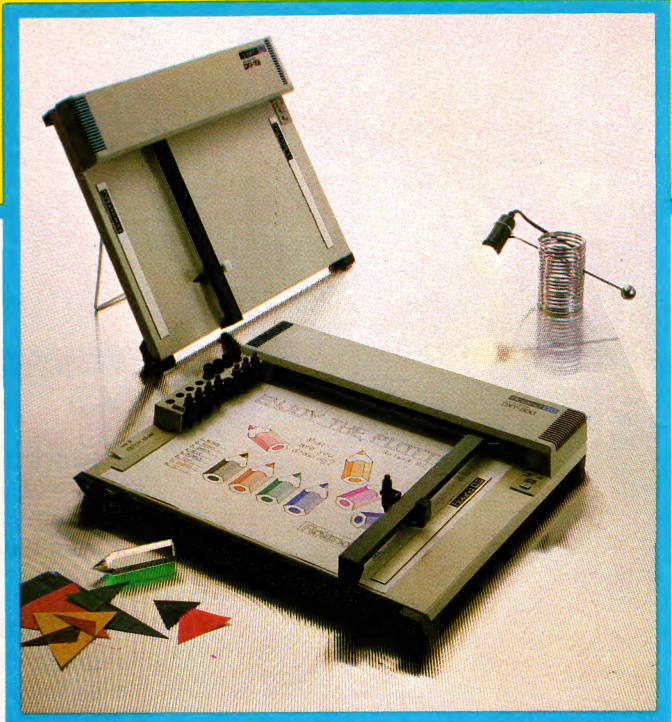
If you've travelled overseas, then you would have heard about Roland Corporation's high-performance, low-cost, multi-pen, color plotters. Now, you won't have to travel because they are available here from Roland dealers in all States.

Roland's high performance 8 pen plotter also comes with a single pen variant (DXY101). These flatbed X-Y plotters are the most compact units of their kind and come in a portable carry case.

They have an effective plotting range of 360mm x 260mm (A3) and can operate on an incline up to 60°, a practical application in the work situation.

Maximum operating speed is 180mm/sec, very fast for this type of plotter. Optional speed settings allow adjustment for different types of pen and paper. Additional pen holders are supplied allowing use of a wide variety of pens with the DXY800.

Roland X-Y plotters feature a wide variety of command applications; vector commands,



character commands, graphic commands and pen exchange commands.

Both RS-232C Serial and Centronics parallel interfaces come built-in as standard features, making Roland X-Y plotters compatible with virtually every model on the market. And we have support graphics software.

But the most pleasing aspect about Roland plotters is their price. Give us a call ... you'll be amazed.

**JUST RELEASED**  
BPS Business Graphics & drivers  
for virtually all leading Graphics  
software. Lotus 123 Drivers  
available soon.

# Roland



**Roland Corporation Australia Pty. Ltd.,**

39 Victoria Street, Fitzroy, 3065.  
Telephone: (03) 417 1800.

23 Cross Street, Brookvale, 2100.  
Telephone: (02) 938 3911.

Enter S023 on Enquiry Card

ROL 792



**Editor** Ian Webster  
**Associate Editor** Tony Smith  
**Technical Editor** Neville J. Angove  
**Production Editor** Denby Browning  
**Contributing Editors** Tony Adams  
Warren Burt, Norman Kemp  
Ron Pollak

**News/Feature Network** Infoworld,  
PC World, Micro Marketworld,  
Computerworld

#### ADVERTISING

**Group Manager** Mike Williams  
**Co-ordinator** Judith Seymour  
**NSW Sales** John McGaulley  
Debbie Somers, Susan Taylor  
**Vic Sales** David Clarkson  
Laurie Gross  
**Queensland** George Hibbert  
(07) 371 6557  
**Perth** Winkie Corfield  
(09) 384 5856  
**Adelaide** Jim Stone  
(08) 223 4631

#### CIRCULATION

**Manager** Shirley Ingram  
Dorothy Adams

#### MARKETING/DISTRIBUTION

**Manager** Ken Beever

#### PRODUCTION

**Manager** Max Jaeger  
**Graphic Design** Dean Shirley

**Publisher** Alan Power

#### ENQUIRIES & CONTACTS

Computerworld Pty Ltd, 37-43 Alexander Street, Crows Nest 2065, Australia. Tel: (02) 439 5133 Telex: COMWOR AA74752. Computerworld Pty Ltd, 74-76 Eastern Road, South Melbourne, 3205, Australia. Tel: (03) 690 2933 Telex: COMWOR AA33926.

*Australian Micro Computerworld* is published each month by Computerworld Pty Ltd, a company incorporated in NSW. It is available by annual subscription (see detachable sub order forms in each issue) and through newsagents and selected computer retail stores. Reprinting of articles in *Australian Micro Computerworld* is strictly forbidden without written permission. All rights reserved. Copyright 1984 by Computerworld Pty Ltd. Other publications published by Computerworld Pty Ltd include *Computerworld Australia*, The newsworthy for DP professionals; *Australian PC World*; *On Communications*; directories *Greenbook of Software and Related Services*, *Redbook of Hardware and Related Services*.

Printed by Offset Alpine Printing Pty Ltd.  
Silverwater, NSW.

Distributed nationally by Gordon & Gotch.



\* Recommended retail price only. Registered by Australia Post. Publication No NBP 5800 — Category B



## NEWS

### 4 Software Copyright

*Tony Smith reports from the recent Software Copyright seminar*

### 10 News Highlights

Assure package  
Taller Tallgrass  
Commodore Multiplan  
Access Pak  
PC-DOS from DR  
Apple network  
Tandy's 2000  
Financial models  
Lotus blossoms  
Sperry fast

### 14 World News

Radio Shack drive  
Timex dips out  
Expert-Ease  
Warner profit rises  
Multi-User dBase II  
Push for Unix  
Pick of the bunch  
Visicalc battle  
Offers for Victor  
Tandy discounts

## OPINION

### 17 Comment: Ian Webster

*The thrill is gone (putting the PC into PC 84)*

### 18 Comment: Nigel Leith

*I've just interfaced Pine Gap to my Big Board*

### 19 Kemp on Computing

*The fantastic, plastic, exploding inevitable*

### 20 According to Dvorak

*The most bizarre marketing concept I have ever seen*

### 21 Letters to the Editor

## STATE OF THE ART

### 22 PC 84 Show

*There's no business like show business. A tour round Australia's leading personal computer show sets the mood for 1984.*



# INDEX

## REVIEW

- 28 For a Few Dollars More**  
*Neville Angove discovers that Texas Instruments really has gone Professional*
- 36 No Frills Accounting**  
*Ron Pollak and Morris Bass review nine Australian accounting packages.*
- Padmede  
Attache  
MicroTiger  
IAL  
Peachtree  
Future Business Systems  
IMS  
Sybiz  
EBS

## APPLICATION

- 77 Multiplication: That's the Name of the Game**  
*With more than 150 multi-user microcomputer systems available out there, Tony Smith takes a look at the past, present and future of multi-user microcomputing*
- 84 Surveying the multi-user market**  
*Tony Smith surveys the players in the Australian multi-user microcomputer market*
- 90 Four approaches to multi-user microcomputing**  
*There are several approaches to implementing multi-user capability on microcomputers. AED, Altos, IMS and ICL illustrate the different approaches*

## DEPARTMENTS

- 103** Systems  
**104** Peripherals  
**106** Software  
**108** Communications  
**110** Microware  
**115** Applications  
**116** Industry  
**118** Education  
**119** Events  
**120** Next Month

## COMMUNITY

- 98 The User's Always Right**  
*Selling a computer system is one thing, supporting it is another. Deborah Smith talks to MSRs, the people who introduce users to their machines.*



Cover photography: Graeme Gillies





## Industry Stumbles on Copyright

***Tony Smith reports that software copyright has opened a Pandora's box of legal concerns about electronic information***

THE recent National Symposium on Legal Protection of Computer Software turned into a splendid event for the Australian computer industry.

It gave the industry a level of prominence and concern far above the best it had ever been able to achieve for itself.

The symposium was very well managed by the sponsoring government departments: Attorney General's, Industry and Commerce and the Patents Office of Science and Technology.

It was organised for the government to obtain the views of interested parties following the decision of Justice Beaumont in the Apple versus Computer Edge case that computer software was not protected by copyright.

The night before proceedings were to get under way in earnest, the symposium was officially opened with a brief address from the Attorney General, Senator Gareth Evans.

He explained that it was in the public interest to give creators and inventors protection so they had the incentive of financial return but, because copyright conveyed monopoly, special provisions were needed to ensure public access.

He concluded that the government would not bring down legislation before the Apple appeal was decided but that it might not await the outcome of the full legal process.

Master of ceremonies for the symposium Robin Bell of the Attorney General's Department opened the serious part of the proceedings with a restatement of direction and some points he had noted.

He said the computer industry in Australia had been fragmented until the software issue had led to groups talking to each other. He said it was easier for government if industry

resolved its own disagreements.

The first cab off the rank, Australian Computer Society president Alan Coulter, said ACS represented a range of views. He succeeded in making many points which were forgotten for most of the day as the focus of the symposium narrowed, only to be reactivated later from diverse sources.

His consensus supported protection with a separate definition, the need for a thorough enquiry, and problems with interim provisions which become too hard to remove, a point he followed up with the suggestion of a "sunset clause" in any short-term legislation.

He raised the taxation and accounting implications of any uncertainty over software ownership, as well as concern for the speed of developments which could see software

### **CL fired off a stinging attack on the lack of government action since December.**

copyright extended to cover a representation of generally available knowledge contained in an heuristic program.

The previous day there had been a get-together of several industry bodies which, thanks to the engineering of Computer Power Pty Ltd's eminently acceptable joint managing director Brian Johnstone — and, much to the chagrin of the Australian Computer Equipment Suppliers Association (ACESA) — appointed Karl Reed "spokesman for the computer industry", a position for which he has long strived.

That agreement led to Reed being slotted in for a minute to announce

the points on which the industry had agreed: immediate legislation for protection, concern about awaiting the legal process, with an enquiry to follow.

A succession of industry organisations then occupied their allotted 10 minutes each with a statement of who they were, their support for the agreed position and details of the specific disasters that would befall their segment if their consensus was not heeded.

All slightly qualified their endorsement of the joint position, but it was left to the ACESA spokesman, ICL's Val Mickan, while trying to squeeze 50 per cent more words into 10 minutes than anyone else, to fire off a stinging attack on the lack of speed of government action since December.

That attack, which brought some solid rebuttals during the day, must be seen in the light of the ACESA secretariat having thought they had won the case in December. As professional lobbyists, they could be seen by their members as ineffective because the government has opened its ears to other points of view.

The first odd group to win the title of "industry" was the Australian Book Publishers Association, many of its members being keen to get into publishing educational software based on the clear misconception that copyright law would enable them to sell multiple copies of software as class sets.

An even less likely inclusion with "industry", the Australian Copyright Council, through its executive officer Peter Banki, at least provided some stimulus for tea-break conversation by raising issues for the implementation of software copyright which had not before seen light of day.

While he did not like polluting copyright with things mechanical, he saw opportunity for dual protection through both copyright and industrial property law.

Provision was required for library type abstract and indexing services, visual images on screens and the ownership of continuously updated databases.



Summing up the suppliers' views, Brian Johnstone said that it did not matter that legislation was difficult to enforce as it would at least be possible to take action over blatant copying. He said the software industry should not have to fund the free availability of educational software.

clared opposition to any short-term action, wanting free movement of software within an institution. He compared execution of a program to reading a copyright book (hardly a breach), and expressed concern at any risk to the availability of the "common heritage of programmers" — the coding techniques developed

possible to divert money from other "essential" needs.

He said schools urgently required clarification of the situation, the right to modify and adapt software and to be treated at least as leniently as domestic users without suffering onerous administrative procedures.

Bruce Taylor, as alternate spokesman for Software Liberation, restated arguments that had had extensive coverage before the symposium. He took pains to limit his organisation's interest to the area of packaged microcomputer software, leaving the bulk of the longer established industry still covered by enforceable contracts and licensing agreements.

The Australian Federation of Consumer Organisations said that the real purpose of copyright was to facilitate public access to copyright materials, that almost all people using copies would do without rather than pay for the originals, and that cheaper software must stimulate hardware sales.

After lunch, three lawyers were given the task of espousing the options open for legislative and international action.

The first (pro-copyright) lawyer proceeded to make a number of errors of fact about the nature of computer software which lost much of his audience, some for most of the session.

He emphasised that copyright law does not have the appropriate right-of-use provisions and said any shortening of the term of protection would need to be done outside copyright law to avoid breach of international agreements.

Discussion on international issues concentrated on seeing how many of the delegates could be convinced to come back to Canberra in April for a seminar on international developments on the legal protection of computer software, to be held in conjunction with a long scheduled World Intellectual Property Organisation technical meeting.

The final session consisted of a virtual panel of five "judges" backed up by a jury of 250 confirming that the points made by the industry had ▶



Attorney-General Gareth Evans opened the Copyright Symposium.

The first speaker of the "user" session who, without doubt, should have been included with the suppliers, self-styled president of the fledgling Australian Computer Retailers Association, Bernard Kirschner, took only a fraction of his allotted time to declare "software is property".

His parting line, conceding the need for laws defining man's relationship with information technology, underlined his style.

Macquarie University vice-chancellor Prof Edwin Wood, representing heads of tertiary institutions, was the first person to really set the cat among the pigeons when he de-

over many years and embedded in countless programs.

A libraries spokesman raised issues of public access to information in a democratic society and libraries' right to loan via retransmission of encoded works, suggesting that creation of an electronic copy should not be reasonable grounds for breach of copyright.

A member of an Australian Education Council working party went to much trouble to disassociate his views from the unformed ones of that council before concluding that computers were making an important contribution to learning while funding constraints made it im-



not stood up to scrutiny and thus the likelihood of precipitous legislation was considerably diminished.

It started with a statement from panel chairman Bell that the Attorney General's Department was most unhappy with ACESA's early criticism of the supposed lack of speed.

Roger Clarke, a practitioner recently turned academic, emphasised his disappointment at the lack of long-term suggestions from the industry. He gave examples of compiled chips and non-human authors as part of a stream of challenges to be addressed.

He raised the question of whether the about-to-be-chosen Management Investment Companies, or the board responsible for them, could allow investments in software companies while the status of software as property remained unclear.

He said that Software Liberation's position was being fraudulently represented as revolutionary when all it was doing was proposing moving the software industry from one well-established economic *modus operandi* to another equally accepted for appropriate industries.

David Walsh, who came to be referred to as the panel's token lawyer, had the important distinction of being the only person on both the government's advisory committees on copyright and on industrial property.

When Walsh said that the industry had not convinced him of any urgency and that there were some disadvantages to immediate action, the writing was on the wall for the debate. For the first time, it was clear that government and its independent experts would have to be convinced by reasoned argument, and would not be moved by pressure alone.

Brian Johnstone waited until well into the session to fire the final shot for immediate legislation, explaining that the computerists could no more come to terms with legal technicalities than the lawyers could with computers. He pleaded for a climate of confidence in which software developers could go about their business without fear.

That psychological point was immediately recognised as being just as important as the legal and so far unsubstantiated economic arguments, but by then the consensus was that any such problems could be handled by a strong dose of government policy pronouncements without any need to accelerate a thorough legislative program.

Karl Reed, freed for a while from being spokesman for the industry, announced that his Software Industry Committee had long been advocating public funding of educational software. He put in an informal application to join a task force investigating protection mechanisms rather than having to produce yet another unrewarded submission to an enquiry.

As expected, Albert Langer got the most words in without resorting

---

## **They emphasised the need for the industry to explain itself properly.**

---

to any points not raised on previous occasions, but gradually a few more people actually listened.

A couple of organisations which had not been included on the program were given an opportunity to speak. That pushed the already teetering supplier cause over the brink.

Everyone interested already knew that the Australian Council of Social Service's member organisations had a pressing economic need for affordable software, but were flattened when the council offered to get together with consumer groups to mount effective political action for the cause of developing the Australian industry — an offer to which only token resistance could be offered.

The spokesman for the other omitted group, IBM mainframe users hiding under that extraordinary name Australasian Share Guide, effectively conceded defeat

for the ACESA position with an outburst of abuse directed against the social service organisation and anyone else he perceived as not representing his favorite supplier.

That, of course, came straight up against international convention requirements, making it obvious that satisfactory short-term legislation would take about as long to draft as anything that might replace it.

Even the proposed sunset clause then ran into trouble. A member of the NSW Society for Computers and the Law suggested that any protection period under sunset legislation would have to be kept to two or three years so that recipients of the protection could not be in a position to claim that subsequent legislation was depriving them of pre-existing rights.

The lawyers then went to town, decreeing neither copyright nor patent to be appropriate and demanding that protection be part of a new coherent information law, with other legal and social implications fully examined.

Despite a brief flurry of concern for perceived dangers to Computer Power's new offset software contracts, the symposium suddenly became a forum for a pleasant return to centre stage by retired copyright regulators. One of them suggested that, by developing legislation from scratch, Australia would be in a strong position to influence the shape of international agreements.

In their summing up, the panel's references to short-term protection no longer assumed the copyright mechanism, and they got on with emphasising the lack of industry forward planning, the need for the industry to explain itself properly, and the need for further community involvement.

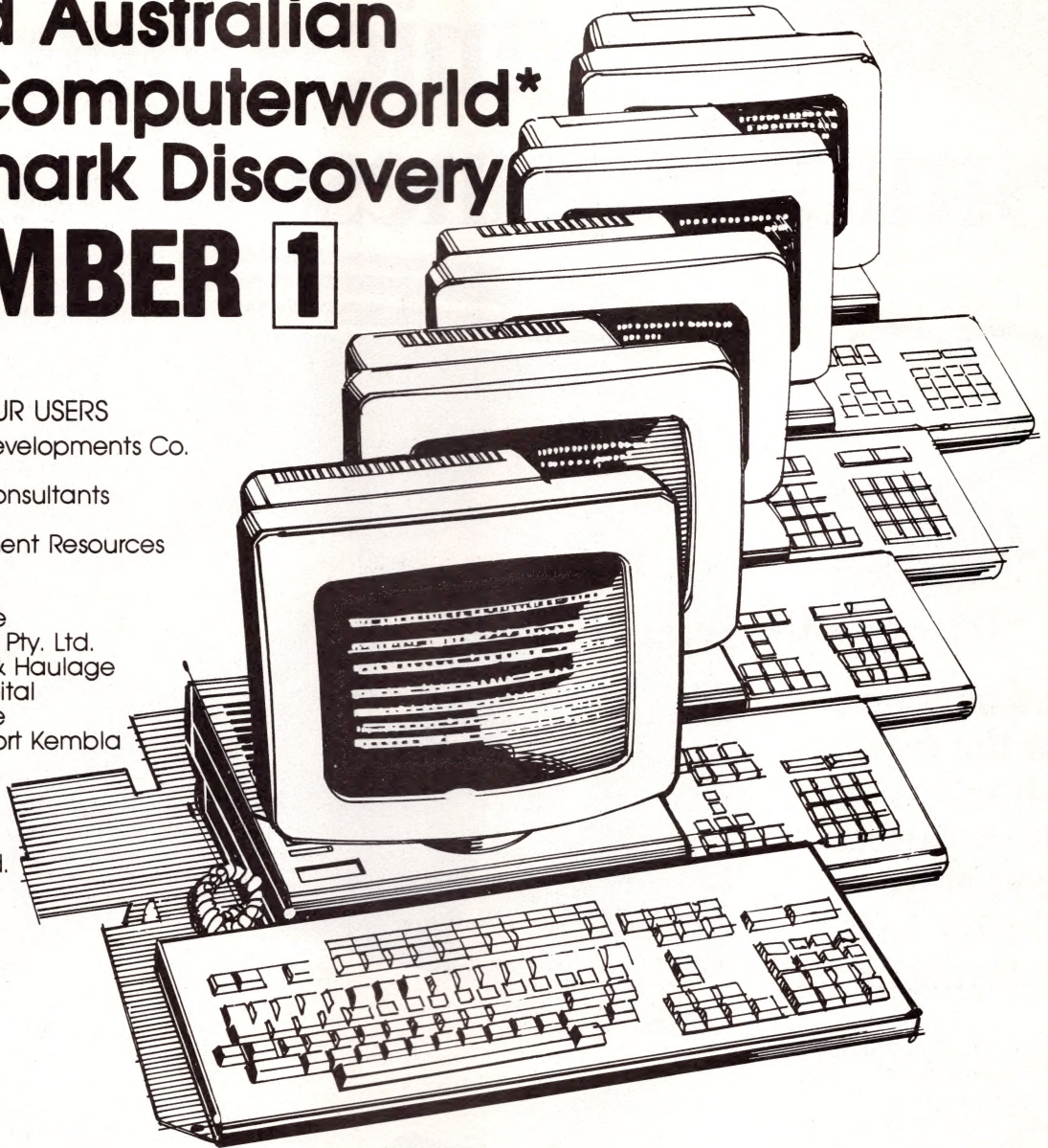
Langer, seeming only to address his supporters, talked of triumph and the need to beware of a massive rear-guard action from large and powerful foes. But, master tactician that he is, maybe he was challenging ACESA secretariat to come in heavy, knowing that such a move was the last thing the rest of the industry wanted and would fail. **m**



# Why did Australian Micro Computerworld\* benchmark Discovery as **NUMBER 1**

## JUST ASK SOME OF OUR USERS

Australian Land and Developments Co.  
Blackall Shire Council  
Chandler & McLeod Consultants  
Corporate Underwriters  
Cruickshank Management Resources  
C.R.A.  
CSIRO  
Department of Defence  
George Kinnear & Sons Pty. Ltd.  
Goodsirs Earthmoving & Haulage  
Heidelberg Repat Hospital  
John Allison Monkhouse  
Metal Manufacturers Port Kembla  
Mitsubishi  
Nagle College  
Plant Growers Australia  
Progressive Finance  
Shorko Australia Pty. Ltd.  
Taylors College  
Telecom Australia  
T.A.B.  
WBCM Consultants



They found a multiuser computer system that outperformed most mini whilst halving the cost. The Discovery multi-user system, chosen for its superior hardware design, wide range of applications software, superior communications and a straight price/efficiency ratio.

When you decide to buy Discovery you'll find yourself in good company.

## DISCOVERY - THE COMPUTER WITH A CLEAR GROWTH PATH

\*Ref: Australian Micro Magazine Nov. '83.

 **archives**  
computers australia pty ltd

- 163 Clarendon St, Sth. Melbourne, Vic. 3205.  
Tel: (03) 699 8377 Telex: ARCAUS AA39388
- 16th Floor, 55 Lavender Street, Milsons  
Point, NSW, 2061. Tel: (02) 922 3188.
- 419 Remuera Road, Remuera, Auckland 5, New  
Zealand. Tel: (9) 50 3548

Enter S039 on Enquiry Card



**NEW  
RELEASE**

# microbee 128K Small Business Computer



**“microbee  
is the biggest  
success story  
of Australian  
computer  
design and  
manufacture”**

Now just released, **microbee 128K dual drive Small Business Computer** priced at only \$2245 with popular programs from the world's best known software houses and a friendly 'user interface', appealing to beginners and experts alike.

A total package deal for the serious computer user, the **microbee SBC** comes with world class software such as **WORDSTAR** (accounts for 50% of the Australian wordprocessing market), **MicroSoft MULTIPLAN** (The 3rd generation spreadsheet), **MicroSoft BASIC**, and the powerful **MICROWORLD** packages such as **TELCOM 2** (networking to other computers either directly or through a **MODEM**), **Disk BASIC** and **Disk WorkBee**.

The special user interface called 'B-Shell' allows the use of industry standard software, while being much 'friendlier' than most CP/M systems. 'ICONS' are used to select commonly used programs. **INIT** and **TRANSFER** programs simplify 'housekeeping' function. A comprehensive **HELP** system is also supplied.

The CP/M 2.2 operating system fully

utilises the capabilities of the 128K SBC. Automatic disk caching increases program speed by 50%. 'M-drive' software allows 65K of RAM to be used as a fast disk. **SETDRIVE** allows other disk formats such as **KAYPRO**, **IBM**, **OSBORNE** to be read.

In its review of the leading Australian computer manufacturers in October 1983, **Australian Micro Magazine** claims:

**"microbee is the biggest success story of Australian computer design and manufacture, and the only Australian attempt to get into the demanding consumer market.**

... it is listed on IDC's market predictions for this year."

**BUNDLED SOFTWARE**  
**microbee 128K Small Business Computer** comes complete with

'bundled' software from the world's best known Software Houses.

**SYBIZ Business Package and Database** (including Accounting, Pay Roll and Report Generator); **CP/M 2.2 Operating System**; **Wordstar 3.3 word processor** by Micropro; **Multiplan 1.0 spread sheet** by Microsoft; **BASIC 80** by Microsoft; **Microworld Disk Basic**; **Wordbee**; **Telcom 2 Communications Package**; **Disk Utilities**; **Help Files**.

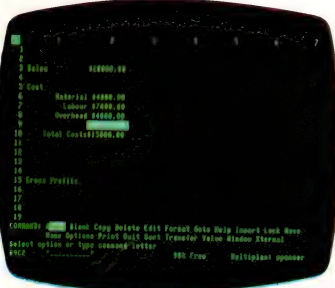
All programs are supported with easy to use condensed manuals and help files on the disks. Ask about the **microbee** training courses . . .

**Manuals Supplied:**— **microbee disk manual** (describes use of CP/M utilities and system specification); **Microworld BASIC**; **Microsoft BASIC**; **Microsoft Multiplan**; **Wordstar Reference and Training Manual**; **Wordbee User Guide**.

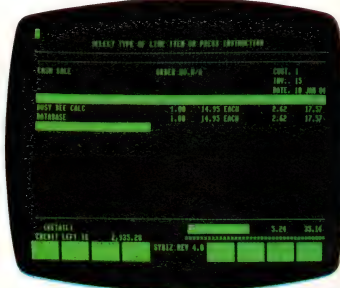




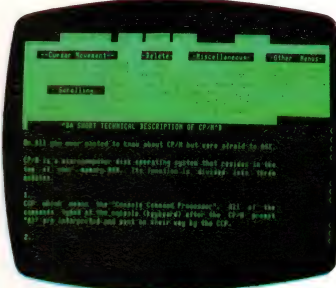
# A complete, cost-effective, professional solution



**MULTIPLAN — Spreadsheets**



**SYBIZ — Accounting**



**WORDSTAR — Wordprocessing**



**ICON — Graphic Identification**

"Compare the features of microbee's Small Business Computer with any other computer at this price. microbee features include:—

**microbee 128K Small Business Computer-Z80A** operating at 3.375 Mhz, 128K bytes of dynamic RAM, 2K bytes screen and graphics RAM, 8K bytes of system firmware controlled with specially designed memory management unit. High resolution 512 x 256 PCG graphics, programmable parallel and serial ports.

Operating system	CP/M 2.2 with M/drive,
User interface	Disk caching
Wordprocessing	B-Shell
Spreadsheet	WORDSTAR 3.3
Accounting, Pay Roll etc.	MULTIPLAN 1.05
BASIC	SYBIZ Business Package
PCG high res. graphics	MICROSOFT, MICROWORLD
Communications	512 by 256 pixels
Terminal emulation	TELCOM 2
Serial Port RS232	ADM 3A/TELEVIDEO
Parallel Printer Port	INCLUDED
Internal loudspeaker	INCLUDED
Disk Drive Capacity	2 by 400 kbytes (FORMATTED)
MONITOR	AMBER/INCLUDED

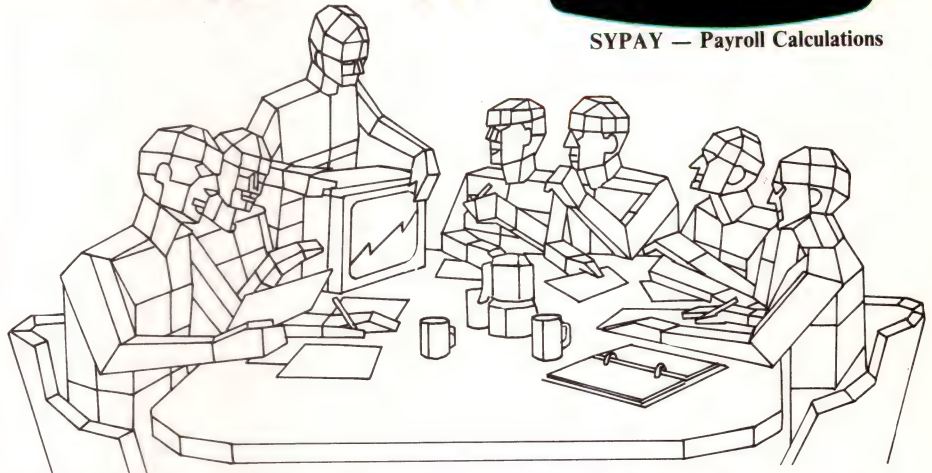
Basic system price includes microbee 128K, Dual Drive Unit, microbee AMBER monitor, 'bundled' software, manuals and sales tax .....

**\$2,245**

**“Incredible 128K microbee Small Business Computer opens new opportunities for convenient disk based business applications”**



**SYPAY — Payroll Calculations**



## microbee computer shops

1 Pattison Ave,  
Waitara 2077.  
Phone (02) 487 2711

729 Glenferrie Rd,  
Hawthorn 3122.  
Phone (03) 819 5288

141 Stirling Highway,  
Nedlands, Perth.  
Phone (09) 386 8250

Cooleman Court,  
Weston A.C.T. 2611.  
Phone (062) 88 6384

151 Unley Road, Unley.  
S.A. 5061. (08) 272 1384

455 Logan Road,  
Stones Corner,  
Qld 4120

Koala Crescent,  
West Gosford 2250.  
(043) 24 2711

Authorised Dealers in:—  
**NSW:**

Carlingford,  
Coffs Harbour, Concord,  
Hurstville, Lismore,  
Sydney, Waterloo,  
Wauchope

**VICTORIA:**  
Glen Waverley,  
Melbourne.

**QUEENSLAND:**  
Aitkenvale, Cairns.

**SOUTH AUSTRALIA:**  
Adelaide, Edwardstown,  
Port Lincoln.

**WESTERN AUSTRALIA:**  
Mount Tom Price.

**TASMANIA:**  
Launceston

**ACT:**  
Belconnen, Weston.



**Shops and Dealers  
Australia wide**

**bankcard**

welcome here

**DIRECT ORDERS**  
PHONE (02) 487 2711  
TELEX AA72767

**APPLIED  
TECHNOLOGY  
RETAIL PTY LTD**



**microbee**

Enter S015 on Enquiry Card



## Assure package

INSURANCE company Aetna Life and Casualty has entered the software market with Assure, a package for insurance brokers and agents.

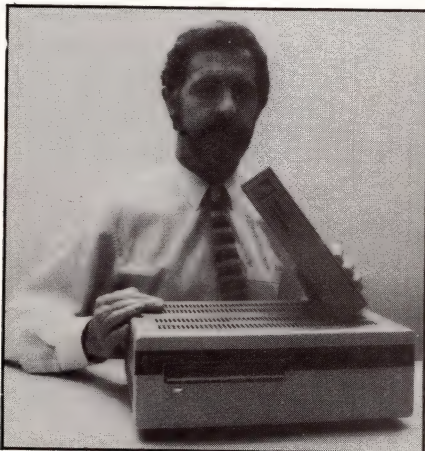
Based on the IBM PC and software developed by Parity Computers, the Assure system allows the agents to do their own accounts, word processing and sales presentations, together with a client-prospecting file and report-writing facility.

Aetna's computer support system for brokers and agents will sell from \$11,500 and includes the IBM PC, the software package, support and service backup. The company anticipates it will help supply about 250 Assure systems in the next two years, in Australasia and Hong Kong.

## Taller Tallgrass

TALLGRASS Technologies Australia Ltd launched a new 70M-byte hard disk/tape system at PC 84. The company claimed the system has the biggest capacity of its kind available for personal computers in Australia. It was unveiled by Jim Worrell, manager for international marketing for the US-based Tallgrass Technologies Corp.

Worrell said the 70M-byte unit brought a new era of mass storage to the personal computer user, providing a previously unavailable level of mass storage for multi-user applications, together with an efficient, reliable backup through the integrated cartridge tape unit. The new unit has all the features of smaller



Tallgrass 70M hard disk/tape system.

Tallgrass systems, including the ability to accept multiple operating systems on separate drives, and user-selectable options, such as duplicate directories and cache memory.

The 70M-byte unit, priced at \$10,900, requires two 45M-byte cartridge tapes for backup, but Worrell claimed that Tallgrass would soon release a new high-density formatting system which would overcome this problem.

## Commodore Multiplan

IMAGINEERING has released a version of Microsoft Multiplan for the Commodore 64 home computer. The C64 Multiplan, which costs \$150, is now the only Microsoft product distributed by Imagineering. It is claimed to be identical to the IBM PC version, giving the C64 similar power.

Early reports indicate that not all is well with the C64 Multiplan, however. The package differs from the current version 1.06 in allowing only a very short print line, and a spreadsheet cannot be printed at all with some versions of the C64.

## Access Pak

JBA Micro has added Access Pak and Business Graphics System to its Peachtree software range for microcomputers. The products are designed to enhance the Peachtree Office Productivity System software, allowing the transfer of information to Peachtree's accounting software and providing graphical displays of numeric data. Access Pak also translates WordStar, VisiCalc and EasyWriter files into Peachtree formats.

JBA Micro's general manager, Gerry Green, has refuted rumors that Peachtree products would be banned from sale in Australia. "There is certainly no chance of Peachtree products being banned from sale in Australia for copyright reasons, as recently mentioned in the media," he said. "Whoever made that statement was not authorised to do so."

Peachtree software is available for more than 30 different microcomputers, including IBM, DEC, Wang,

Panasonic and Sharp. JBA Micro is establishing a dealer network throughout Australia for the range and plans heavy emphasis on dealer support. A spokesman said JBA Micro would also continue to provide direct end-user support where necessary.

## PC-DOS from DR

DIGITAL Research, manufacturer of Concurrent CP/M 86, has announced the release of Concurrent PC-DOS 3.1 for the IBM PC and other 16-bit machines. Concurrent PC-DOS 3.1, to be released in Australia in July, will run applications written to run under both CP/M 86 and MS-DOS, including those applications that make direct ROM calls.

Stephen Maysonave, the director of Digital Research's world trade division, refused to confirm or deny a suggestion that the choice of the designation "PC-DOS", was a sign that IBM had endorsed Digital Research's concurrent operation system as opposed to Microsoft's undelivered MS-DOS 3.0.

## Apple network

APPLE has announced details of network products for all Apple computers. Mr John Cavalier, Apple vice-president for marketing and sales in the Americas, Far East, Africa and Australasia, said the plan included AppleBus, a limited area network and Unix-based file servers.

AppleBus is a 230K-bit/sec interconnect system, based on the RS422 serial interface.

AppleBus for local area networks is expected to be available later this year, although the hardware interface is already built into every Apple Macintosh and Lisa computer. The system will allow users to connect up to 32 nodes at a total distance of 1000 feet for about \$25 per node at current US prices.

The Unix-based file servers will provide a gateway to other networks and mainframes.

A further Apple communications offering will be 3278 Datacom. Lisa and Macintosh communication with IBM mainframes is now available through AppleLine hardware, priced in the \$US1000 range.



## Tandy's 2000

TANDY Australia launched its IBM PC-compatible microcomputer, the Tandy 2000, at the Second Australian Personal Computer Show, with the demonstration units arriving by air-freight just before the Show.

The basic Model 2000, priced at \$4450, includes two 5¼in floppy disks (720K-bytes each), an optional built-in 10M-byte hard disk, 128K-bytes of RAM (expandable to 768K-bytes), serial and parallel ports, a monochrome text interface (color and high-resolution graphics optional) and a four-slot expansion bus. Using an Intel 80186 processor running at 8MHz, the Model 2000 is almost three times faster than an IBM PC while maintaining a high degree of compatibility.

The Model 2000 runs under MS-DOS, and a mouse as well as the MS-Windows will be available.

## Financial models

COMPUTER Accounting Services, a division of Mayne Nickless, has released the Micro-FCS decision support system. Micro-FCS is a microcomputer-based version of the FCS-EPS financial modelling system that can be linked to its mainframe progenitor, allowing financial models developed on a microcomputer to be run on a mainframe, as well as providing access to mainframe databases and electronic mail facilities.

The system is based on simple English instructions, is easy to use, and full support is provided by CAS through training courses, on-site support, and a national telephone help line. The only equipment required at the user end is a suitable microcomputer and modem, plus the Micro-FCS software, all of which can be purchased from CAS. Access to the mainframe attracts a standing charge of \$50 a month, with moderate charges for connect and mainframe time.

Micro-FCS should prove a valuable tool for the professional computer user, allowing the convenience and low cost of a microcomputer to be enhanced by occasional access to mainframe power.

## Lotus blossoms

THE first meeting of the recently established Sydney Lotus 1-2-3 Users' Group, held on February 29 in the Deloitte Haskins and Sells conference room in Sydney, attracted about 100 people including senior staff from many of Sydney's major business houses.

The meeting, organised and chaired by business consultant Ron Pollak, was addressed by several Lotus 1-2-3 users, as well as Douglas Ruttan and George Westwood from Sourceware, the Australian Lotus 1-2-3 distributor.

Ruttan spoke at length about Sourceware's commitment to supporting all Australian Lotus users, regardless of the original supplier of the package to the user. He said he did not expect many Lotus users to upgrade with the new Symphony package, since the functions it offered were probably already available through other software such as dedicated word processing and database management packages.

## Sperry fast

SPERRY Computer Systems previewed its new 16-bit Sperry PC at PC 84 last month, although this entrant in the race for the number

two position behind the IBM PC will not be available until July. The machine is manufactured by Mitsubishi in Japan, to Sperry's specifications.

Sperry, the last of the large mainframe computer manufacturers to introduce a personal computer, claimed that it had waited until all other manufacturers had made their mistakes and, by accepting the IBM PC as the de facto industry standard, was poised to capitalise on the huge amounts of IBM PC-compatible software and hardware on the market.

Geoff Saunders, national marketing manager for the Sperry PC, claimed that Sperry's machine was 100 per cent compatible with the IBM PC at the hardware and software levels, but offered significant performance advantages, including a faster CPU, faster disk access times, higher-resolution graphics and better overall quality.

Saunders said Sperry would price its PC so that it would always be 10 per cent less than a similarly configured IBM PC. The initial market would be present Sperry users, followed by large companies, and then smaller sales through a new dealer network. A large advertising campaign is aimed at putting the Sperry name before the general public for the first time.

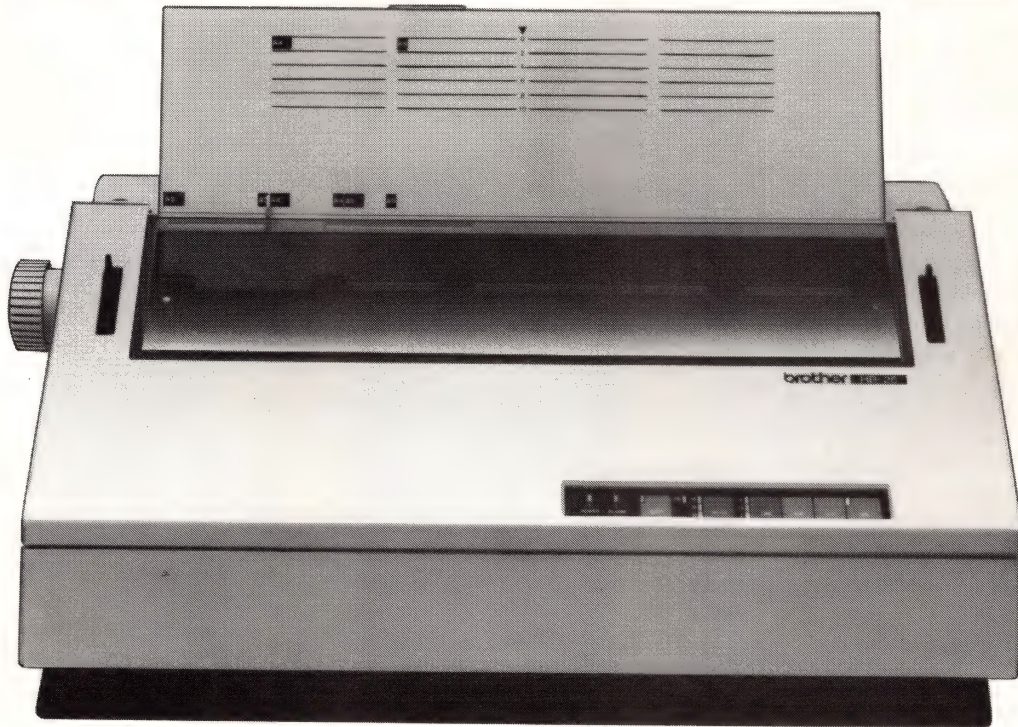


An extensive advertising campaign will launch the Sperry PC.



# Now a high volume, daisy wheel printer for under \$1400.

An integral part of today's word processing system.



## The Brother HR-25

We know you won't match its price/performance anywhere and it will be a valuable asset to any modern, expanding office.

If your work load demands high volume with daisy wheel quality, the Brother HR-25 delivers the services of a professional printer at an amateur price.

The full width carriage handles everything including computer printouts and the tractor feeder and cut sheet feeder further expand the output of the HR-25.

The 5K buffer memory allows you to print a large amount of data, including identical copies, freeing your computer for other uses.

The bi-directional printout operates at a swift 23cps, so productivity is even further enhanced. \$1345\* (rec. retail. Price includes sales tax).

## The Brother HR-15

Designed specifically for the smaller office with lower volume and with a price tag to match.

The HR-15 is truly versatile with its interchangeable letter quality daisy wheel, optional electronic keyboard, and a 3K buffer memory which makes it unique in its class. \$840\* (rec. retail. Price includes sales tax).

Ask your nearest Brother stockist to demonstrate all the skills of these quite exceptional machines.

\*With Centronics interface. Also available in RS 232C at a slightly higher price. W.A. prices slightly higher.

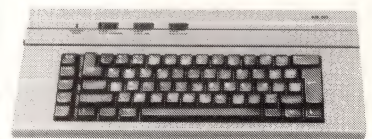
# brother®

## The Affordable Electronic Printers.

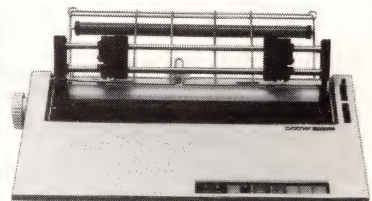
Brother Industries Ltd., Nagoya, Japan.

Brother Industries (Aust) Pty. Ltd. 49 Herbert Street, Artarmon, NSW Phone: (02) 439 7344  
Victoria: (03) 873 3655 Queensland: (07) 52 5257 South Australia: (08) 42 6373 West Australia: (09) 478 1955

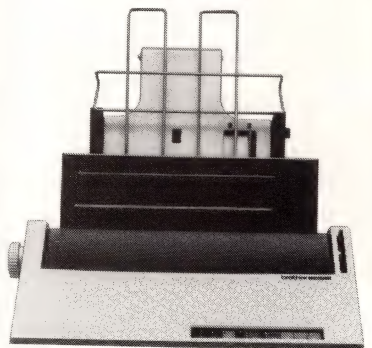
## Brother's Optional Extras



Electronic keyboard (HR-15 only)



Tractor Feeder



Auto Cut-Sheet Feeder

CSO 4277



## Radio Shack drive

RADIO Shack has introduced a \$US799 5¼in single-disk drive for its Model 100 portable. Included with the drive is space for an optional and second floppy-disk drive, which costs \$US240. The drive box also includes connections to link the Model 100 to a computer monitor and/or television set.

The 5¼in single-sided disk drive stores 184K-bytes of information on one floppy. Radio Shack says the disk format is incompatible with other TRS-80 disk formats, such as those for the Color Computer or Model 4.

Unlike the lap-size Model 100, the Model 100 disk drive is not portable. It is about as long and wide as the 100, but is approximately three times the portable's height. The Model 100 itself can store up to 32K-bytes in its nonvolatile RAM. Previously, the only additional storage available for the 100 was through a separate cassette tape recorder.

## Timex dips out

TIMEX joined the list of home-computer drop-outs with last month's announcement that it plans to cease production and sales of the Timex/Sinclair 1500 and 2068 color computers. The company plans to continue manufacturing computers and peripherals for other companies.

A spokesperson for Sinclair Research (Timex's European marketing agent) said the company was disappointed that Timex was leaving the home-computer market, but that Timex's withdrawal will not affect Sinclair's own operations. The market instability cited by Timex as reason for its retreat is not a problem overseas or in Sinclair's \$US500 price range, according to the spokesperson.

## Expert-Ease

THERE are times when you think you need an expert and times when you think you are an expert. In response to both situations, Expert-Ease, the first so-called expert-system creator for microcomputers, was introduced at the recent Soft-con exhibition in New Orleans.

Expert-Ease, developed in the UK

and distributed in the US by Expert Systems of New York, costs \$US2000, runs on the IBM PC or PC XT and requires 128K-bytes of RAM and one disk drive — two drives are strongly recommended.

Expert-Ease's entry screen is divided at the top into cells similar to a spreadsheet with a word-processing window at the bottom. An expert indicates examples of potential problems by entering a mnemonic eight-letter word in each cell. If he wants to elaborate on his eight-letter word, he can open on to the word processing window below and enter more information.

After he has filled the cells, he gives a command and, within 3½ minutes, Expert-Ease creates an expert system that is built on a series of rules that the created system follows in the most logical and efficient manner.

## Warner profit rises

WARNER Communications, parent company of Atari, finally has something to smile about. Warner chairman Steven Ross announced that the company earned a modest profit of \$US5 million for the last quarter of 1983. He attributed most of the gain to cost-cutting and improved sales at the Atari subsidiary.

Atari cut costs 40 per cent in 1983 by eliminating non-essential programs, retrenching more than 1500 employees and moving manufacturing operations overseas.

For the year to last December 31, Warner still lost money for the first time in its 22-year history, losing \$US420 million. In 1982, Warner earnings were \$US258 million.

## Multi-user dBase II

ASHTON-TATE, based in Culver City, California, maker of the popular relational database management system dBase II, has developed a multi-user version of the program designed to operate on 3Com's Etherseries local-area network. The program will be available in the US in May.

Multi-User dBase II allows access to shared information files for anyone connected through the 3Com network. Features include

Record Locking to prevent possible deletion of a file when more than one user accesses any one file at the same time. The program also includes Index and File Locking features along with password security within application programs.

The multi-user package will run under the TurboDOS or MP/M 86 operating systems on the IBM PC.

## Push for Unix

A NEW software company has been formed that may have the answer to the slow acceptance of the Unix operating system on microcomputers. Uniform Software Systems, to be based in Santa Barbara, California, plans to release a utility software product towards the end of the year that will be designed to let MS-DOS application programs such as WordStar, Lotus 1-2-3 and dBase II, run on Unix-based systems.

MS-DOS is the operating system for the IBM PC, compatibles and several other 16-bit computers.

The product, as yet unnamed and unpriced, will offer DOS users the advantages of Unix's multi-user and multi-tasking capabilities and its near machine independence. Under the Unix operating system, only minimal modifications are needed to move applications software from one processor and hardware environment to another.

## Pick of the bunch

PICK Systems has introduced a new version of its Pick Operating System to run on the IBM PC XT.

The new version has been implemented on the XT with IBM Corp support, indicating that Big Blue is moving to establish itself as a multi-user micro vendor.

Pick is the second multi-user operating system to debut on IBM PCs in the recent past. A version of Unix called PX/IX on the IBM PC was introduced on January 16 at the annual Unix users' conference.

Pick Systems, based in Irvine, California, debuted its PC XT implementation of the operating system at the annual Pick users' conference, called Pick Spectrum held in Reno, Nevada, recently.



## VisiCalc battle

THE continuing feud between Software Arts, creator of the popular VisiCalc electronic spreadsheet program, and VisiCorp, its exclusive distributor, flared up again at the Softcon show in New Orleans. Following through on its promise to negate VisiCorp's marketing rights to VisiCalc, Software Arts announced the availability of its own version of VisiCalc Advanced Version, a VisiCalc upgrade for the IBM PC and PC compatibles.

The two companies have been hurling suits and countersuits at each other for six months. VisiCorp has been marketing VisiCalc since 1979. Software Arts recently decided to break its marketing agreement with VisiCorp after more than a year of antagonism.

Software Arts recently announced its intention to begin immediately marketing VisiCalc. A Massachusetts court refused to grant VisiCorp

a temporary restraining order that would have prevented Software Arts from using the VisiCalc trademark.

VisiCorp introduced an Apple IIe version of VisiCalc Advanced Version last August, but the Software Arts' upgrade version for the IBM PC has some additional features, according to Daniel Bricklin, chairman of Software Arts and co-developer of the original VisiCalc.

## Offers for Victor

VICTOR Technologies, the latest major casualty among microcomputer makers, is considering two offers from one company that might bail it out of its bankruptcy status. Applied Computer Techniques (ACT), the Birmingham, England, company that is Victor's leading distributor, has offered to buy part or all of Victor's manufacturing rights.

The company bid an undisclosed amount to buy full manufacturing

rights for the Victor 9000 in the UK. At the same time, it has also made a more encompassing bid to acquire exclusive worldwide manufacturing and distribution rights. In both instances, ACT said, financing would depend on existing resources of the company, which had about \$US70 million in sales last year.

## Tandy discounts

IN A major departure from policy, Tandy Corp has begun a series of short-term discount specials in its Radio Shack computer stores, and has expanded its sales of non-Radio Shack-labelled software. The move has been seen by some Radio Shack dealers as an effort by the company to shore up diminishing sales.

The discount specials are unusual for Tandy, which has always planned sales and specials months in advance and has prided itself on not reacting to market competition in the short term by discounting.

## macpro turbo

Meet the newest name in town!

**macpro** — A totally new local area network designed to offer high performance and reliability without an import price tag.

This exciting new network is designed and manufactured in Australia.

Important things like after-sales service, future developments and enhancements will all be maintained locally ensuring the user of ongoing support.

**macpro** prides itself on being an innovator in a rapidly changing industry.

The **macpro** local area network is ideal for Word Processing, Accounting, Office automation, Stock control, in fact any application requiring multi-terminals sharing a common database.

We have chosen TurboDOS as the operating system over all other microprocessor networking systems because of its proven ability to multitask and maintain greater performance levels.

Due to the fact that each individual terminal is directly linked to the host processor via a high speed data link, the intelligent terminals can access the database at optimum microprocessor speed.

Our functional, modular, ergonomic design ensures that future updates may be implemented at any time at low cost and minimal downtime.

Since it is a modular system, speed and productivity will increase as you add more elements or modules with greater capacity. Your production power has no limits.

## macpro

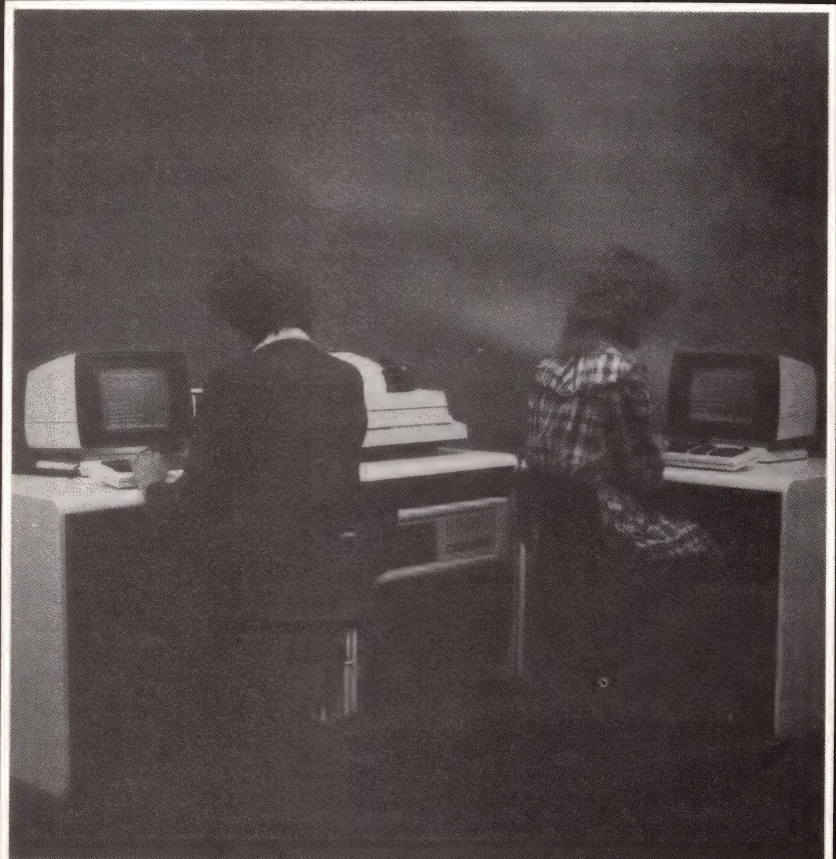
COMPUTERS (AUST) PTY LTD

183 Bank Street,

South Melbourne, Vic 3205

Telephone: (03) 699 3100.

Telex: AA30625





Introducing Le disc by de Vere — the longer life diskette that carries the promise of higher performance and trouble-free data recording, storage and retrieval.

Every Le disc meets or exceeds the Shugart, ANSI and IBM standards and is certified at the time of manufacture to be 100% error free.

All diskettes are double density and available single or double sided.



**EXCLUSIVE!**  
**SPECIAL OFFER**  
**No 2**  
FROM AUSTRALIAN MICRO COMPUTERWORLD

# Le disc

The offer is open only as long as stocks last. Avoid disappointment by completing and returning the order form

**NOW!**

## SPECIAL FEATURES

- \* Extra diskette envelopes.
- \* Color-coded labels for easy filing.
- \* Special Le disc storage boxes.
- \* Le disc is compatible with all popular micros.

## PRICES

5¼in single sided/double density —  
pack of 10 \$33.10

5¼in double sided/double density —  
pack of 10 \$45.00

Prices include sales tax and postage.

Return to: Special Offer No. 2  
Australian Micro Computerworld  
Computerworld Pty Ltd  
74 Eastern Road,  
South Melbourne, Vic. 3205.

Please send me:

- (1) ..... 5¼in single sided/double density packs of 10 at **\$33.10/pack.**  
(2) ..... 5¼in double sided/double density packs of 10 at **\$45.00/pack.**

NAME .....

ADDRESS ..... P/Code .....

☐ Cheque/money order attached (payable to  
Computerworld Pty Ltd)

OR

☐ Please debit my Bankcard/American Express Card

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Using your charge card, we must have your  
signature .....

Please allow up to 21 days for delivery.

\* If you want to keep your magazine intact, please photostat  
the coupon.



# GrafTalk

**GrafTalk** is a complete GRAPHICS subsystem. It comprises a full-screen spreadsheet-like editor, a dual screen command editor and simple command generation of pie charts, bar charts and X-Y plots. GrafTalk is both fully menu-driven and fully programmable. It is a standard in the micro-computer world which can accept data from all popular spread-sheets and database system reports.

If you have any of the following equipment, **GrafTalk** can be installed:

## Computers

IBM PC  
DEC Rainbow  
Any Z80/8080 compatible  
North Star Advantage  
Televideo TS803

## Screens

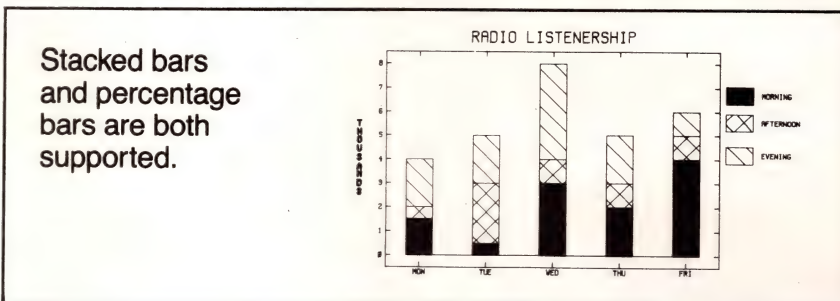
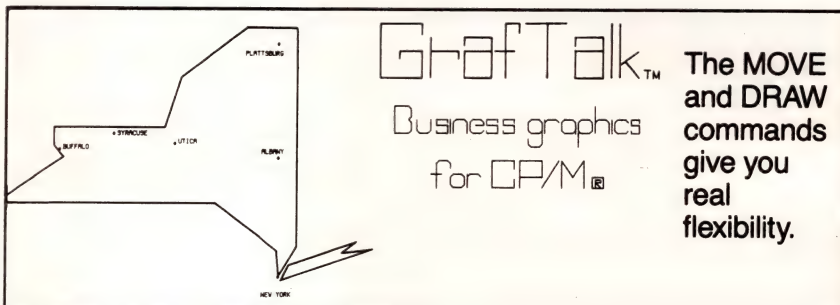
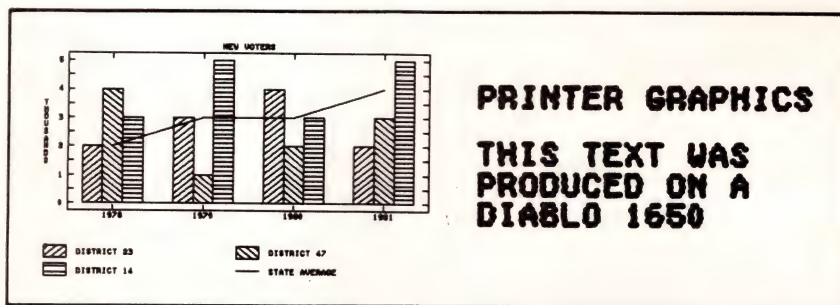
ADM3A or ADM3a+ or ADM5 with  
RG512 retrofit  
Televideo 912, 9020 with Datatype retrofit  
(Autograph 120)  
Televideo 910, 950 with Datatype retrofit  
(Autograph 150)  
ID-100 VB  
VT100 with Digital Engineering Retrofit  
(DE VT640)  
TAB 132/1S-G with TB600 Board  
Televideo Terminal with Selanar SG900 board

## Plotters

Calcomp 84, Calcomp 81, Goerz 284,  
Goerz 281, IBM XY/750  
Hewlett-Packard 7220, 7225, 7221, 7470  
Houston Instruments DMP-3, -4, -6, -7, -29  
Panasonic VP-6801P  
Strobe Model 100  
Tektronics 4662  
Watanabe 4675, 4636  
Mannesman Tally PIXY3 plotter  
AMDEK Amplot II plotter

## Printers

Diablo 1640, 1650, 630 (as direct plotting device)  
NEC Spinwriter 5510, 5520 (as direct device)  
Anadex 9501 (as dump device)  
Diablo 1640, 1650, 630  
NEC Spinwriter 5510, 5520  
Paper Tiger IDS-460  
Epson MX80, MX100, FX100  
Okidata 82A, 83A, 84 (also known as  
Microline, ICL . . .)  
Okidata 84  
Okidata 92, 93  
C.Itoh Prowriters, 8510 and 1550  
DEC LA50 printer



**FMS** 95 Canterbury Rd, Middle Park, Victoria 3206.  
Telephone: (03) 699 9899 Telex: AA316024.



- 1 Computers and electronics including manufacturers; system and software companies; OEMs; dealers; distributors; marketers.
- 2 Manufacturing, other than computers and electronics.
- 3 Public Utilities/Communications Systems/Transportation.
- 4 Wholesale/Retail Trade
- 5 Finance/Insurance/Banking
- 6 Mining/Construction/Oil and Refining
- 7 Business/Services (not DP)/Real Estate
- 8 Education/Medicine/Law
- 9 Government — Federal/State/Local
- 0 Printing/Publishing/Other Communication Services.
- 1 PR and Advertising
- 2 Others \_\_\_\_\_  
(Please describe)

**Mail to: Circulation Manager, Computerworld Pty Ltd, PO Box 929 Crows Nest 2065.**



*Place this completed subscription order card in a sealed envelope and mail to:*

Circulation Department,  
Computerworld Pty. Ltd.,  
P.O. Box 929,  
CROWS NEST 2065 AUSTRALIA

*Place this completed subscription order card in a sealed envelope and mail to:*

Circulation Department,  
Computerworld Pty. Ltd.,  
P.O. Box 929,  
CROWS NEST 2065 AUSTRALIA

*Place in sealed envelope and mail to:*

Circulation Department,  
Computerworld Pty. Ltd.,  
P.O. Box 929,  
CROWS NEST 2065 AUSTRALIA

**Every month**

**Australian micro**  
**COMPUTERWORLD**

**will fill you  
full of:**

- ☐ News
- ☐ Software reviews
- ☐ Hardware reviews
- ☐ Analytical and general interest articles
- ☐ Latest in software, microware, communications, peripherals, systems, processors, trends in the micro industry
- ☐ People profiles
- ☐ Look ahead items
- ☐ Columnists
- ☐ Humor

**plus lots more!**

**All for \$28 a year.**  
(Australia only)

(Sub order cards are attached to this promotional flap.)



# THE THRILL IS GONE (PUTTING THE PC INTO PC 84)

THE week of Australia's leading personal computer show always provides an opportunity to assess the direction of microcomputing in Australia. The manufacturers, distributors, dealers, retailers, developers and users come to Sydney and set the mood for the rest of the year.

At times, this year's show felt strangely empty. It wasn't that better organisation overcame last year's suffocating crush, because organisers claimed numbers were up 10 per cent on last year. There was just a feeling of small numbers and a lack of excitement; perhaps the thrill has gone.

Right from the outset, at the opening ceremony on the top level of Sydney's Centrepont Tower, it was clear that this year would be different. Senator Button, the Minister for Commerce, set the tone when he continued the Labor government's articulate exposition of the place it sees for the computer industry in Australia. The industry is still having difficulty understanding the government's vision of computing as a support and infrastructure industry, rather than a glamorous high-tech industry. But, after the events at the software copyright seminar at the end of the week, the message must be clear.

Just as the excitement has gone, so has 8-bit microcomputing. The change is almost revolutionary in the Australian market. The show was dominated by 16-bit microcomputing in all shapes and sizes, but largely clustered around the PC-compatible space. This is the immediate future of microcomputing in Australia, and appears poised like a tidal wave about to sweep across the market.

While several 8-bit systems were displayed, only the home, educational and portable computing markets remain viable. The clearest indication of the shift in the market

was the absence of third-party support companies for these machines. With the exception of educational and entertainment software distributors, there weren't any at the show.

The magnitude of this transformation supports several recent observations about the local 8-bit microcomputer market: the diminishing returns in the home-computer market (despite strong sales), the hardware ghetto that education bureaucrats are creating in schools and the poor prospects facing Australian microcomputer manufacturers committed to the Z80 processor and unable to migrate up to the preferred 80186 processor because of extreme chip shortages.

The two products that received the most interest at the show were Apple's Macintosh and Digital Research's Concurrent CP/M 86. With deliveries to users due to begin in April, Apple must be encouraged by the enthusiastic response to Macintosh. Even the most cynical micro-hardened veteran users admit the Macintosh is a classic machine that deserves to succeed.

Apple Australia now has to deliver on the promise of Macintosh.

Brisbane Company Arcom, now Digital Research distributor in Australia, finally made its presence felt in Sydney with the release of Concurrent CP/M 86 on several 16-bit systems. As far as serious users were concerned, it was the most important software release at the show, and is sure to have a big impact.

Both Arcom and Microsoft gave users a glimpse of the next generation of their operating system software, with Microsoft showing MS-DOS 3.0 with windows (but without networking) and Arcom showing the intriguingly named Concurrent PC-DOS 3.1 with colored windows (but without networking

and MS-DOS 1.1 emulation).

The few Australian companies with Australian-developed products did well at the show, particularly AED with its multi-user Universe system and the Portable Computer Co with its Port-A-Pak portable (available in a range of decorator colors).

Apart from the 16-bit PC explosion, an exciting array of new printer products, discount software, the professionalism of distributors, improved show organisation and the much commented-upon improvement in experience, attitudes and interest of users visiting the show, there is little to say about the show itself, except to comment on the audio-visual presentation offered as an introduction to computing.

This multi-media presentation was the worst piece of computing mumbo jumbo I have seen, doing little except to disorientate and disinform the people who managed to sit through the session.

The Imagineering party established a presence and precedence that will become an important part of future shows. Microsoft chairman Bill Gates talked to everyone and delivered a clear vision of the immediate future to a spellbound audience on the Thursday night.

At the software copyright seminar in Canberra, the computer industry was rolled by a large group of lawyers and academics with an interest in copyright, backed by a government interested in understanding the implications of legislative action rather than responding to vested-interest pressure.

Just as the show indicates that the microcomputer industry is getting down to business (and it's mainly big business), it also reveals the external changes that affect the industry's place in Australian society. As Bill Gates says, you have to create the market, not buy and sell it! **m**



# I'VE JUST INTERFACED PINE GAP TO MY BIG BOARD

WITH the recent surge in the number of small personal computer owners, it is perhaps useful to discuss a few facilities available to them in learning more about their machines.

About six years ago, a small band of technically orientated computer enthusiasts in Melbourne decided (with a degree of foresight) that there should be a group or club available for future small systems users. This group called its club MICOM. Today MICOM has grown to about 400 members with varying degrees of expertise, using a variety of machines.

In the early days, the computer users interested in the club were large system enthusiasts or electronics buffs, but nowadays it is perhaps more the small computer user who becomes involved in this sort of club. MICOM has moulded itself to cater to small computer users' needs without losing any of its hi-tech knowledge or specialised expertise.

A curious club, MICOM professes to cater for any computer user with any peripheral combination. With its hybrid membership, the club has the atmosphere of social activity within the introverted world of the computer "hacker".

The club offers a variety of activities to special-interest groups: CP/M users; individual machine users; game enthusiasts and those who require modem facilities which allow 24-hour communications between members.

Naturally, the merging of these different groups at the monthly meeting creates a totally different atmosphere, one most convivial to interaction between the different hierarchies of the computer community.

MICOM has expanded its venue for CP/M users to a hall, creating a large arena for shouting matches

and joke hurling. The CP/M user is against all other operating systems, and is especially violent towards IBM. With this common antagonism, the meetings appear to operate efficiently. As the group has the complete CP/M library (public domain software), it can offer a large selection of utilities and programs to members.

Other groups, such as the Peach Users' Group, the Otrona Users' Group and other smaller groups such as the Forth Programmers constitute a variety of interests for members to pursue. Recently, as an example of MICOM's flexibility, the Victorian Big Board Users' Group was formed as a MICOM group. While it was not previously thought that there would be enough Big

particular topics which previously wasted considerable time when other users were not involved with the debate being conducted.

With the new system come multi-user facilities and perhaps the most extraordinary innovation of all on a CBBS: Modem Assisted Gaming. The MAGE group is a small committee at present, all busily generating code for the new machine. When it goes on line, the Gaming Enthusiasts will be well catered for.

The club provides an informative monthly newsletter to members and CBBS visitors, as well as entering into bulk buys for members at considerable discount. The meetings are both informative and amusing, with a flair of eccentricity which adds a touch of zeal to a club of enthusiasts and dedicated micro buffs.

One could go on for some time discussing the MICOM psyche, but I doubt if it could ever be covered fully. The club rarely fails to impress people with its openness and its rare, rough opulence. It was once described as a club of avid amateurs led by a group of keen eccentric geniuses, all trying to help each other, and perhaps that is true.

This year, MICOM plans to adopt a slightly different format of meetings, keeping the old-style "forum" discussion but dedicating each month to a different theme such as: portables, languages, graphics, networking, CPUs and so on.

In conclusion, one can only praise MICOM for its service to the computing community. For many years, the tireless individuals at the clubs' helm have steered it through many obstacles with apparent ease. As computing approaches yet another turning point, it will be a delight to see the hand of MICOM involving itself and creating new opinions within that ever-changing community.




---

**A curious club, MICOM professes to cater for any computer user with any peripheral combination.**

---

Board users to warrant separate meetings, they have turned out to be well attended and most inventive.

The most delicious of MICOM's services to members, though, must be its CBBS (bulletin board system). For no extra cost to members, they can connect their computers and modems into the hidden world of long-distance modem information interchange.

Members can enter messages to others on the bulletin board, read those sent, pursue the joke files, look through the help files, extract information about other systems and spend a satisfying evening learning from people's past messages. This system will soon be expanded, allowing users to set up "conference rooms" for special discussions on



# THE FANTASTIC, PLASTIC, EXPLODING INEVITABLE

THE intention of the Victorian government to issue motorists with plastic licence cards is a further step toward people being numbered not as individuals but as communal entries in voluminous databanks. The cards are designed to provide a virtually instant police computer check on whether the holder is qualified to be driving.

The Road Traffic Authority, which is responsible for the move, justifies it as a protection for the innocent in getting rid of unlicensed drivers on the State's roads. According to the State Ministry of Transport, it will cut the time of checking offending motorists to a few seconds from up to half an hour under present methods.

Some may see it as a creeping infiltration of authority into personal privacy, the more so because plastic cards can carry information that is indecipherable to the holder and can be read only by the computer.

The plastic card bearing a magnetic stripe can hold a virtual history on a person, and it need not necessarily be used for judicial or police purposes. In the broader sphere, the personal everyday credit card could be used to contain private details of a user's credit rating which in theory could be accessed by a retail store computer that would not necessarily have an amending update or subsequent correction.

Public acceptance of plastic cards has spread over the past few months, with electronic banking machines being used to provide services beyond normal business hours. Electronic funds transfer (EFT) is progressing further, with schemes for retail stores to issue cards to customers which can automatically debit their bank accounts at the time of purchase.

In the commercial market, banks are discussing plans to transfer

cheque amounts and other funds by electronic means to speed the passage of money without having to bother with clearing pieces of paper. Fortunately, and in good time, government authorities at both State and Federal level have stepped in to try to insist on some reasonable form of compatibility between the systems.

The issue is unresolved, but at least is being debated. Though it may seem obvious that to obtain a general agreement on matching services would enable people to make purchases, negotiate cheques or arrange large financial transactions with the minimum of difficulty, the various vested interests supplying the equipment appear to have been less concerned about

---

**P**rice codes are identified with secret information, breeding an element of distrust.

---

disadvantages and confusion arising from different systems than with getting their brand of product to market.

Shoppers are invariably aware of the bar codes now on almost every grocery and hardware line in supermarkets, although to date only a few selected retail stores have installed checkout points to read the codes, and many of these are still in experimental stages. From the store aspect they are valuable in transferring information to a central computer for updating and compiling stock reports as well as indicating the price at the checkout desk.

But there has been general public reaction against electronic readouts of prices where these are not plainly

marked on shelves. Stores claim that the cost of placing prices on every tin, package or other container means that the customer pays more for the goods; that pricing by bar code on the packet or product improves store economics and the benefits — that is, lower prices — are passed on to the customer.

Consumers have not bought this one. People still like to see the price on everything they buy.

No doubt the stores will win. The compromise will probably be a more substantial display of prices in a sales rack or on a shelf — but not on the products, which will carry the ubiquitous bar code.

Automated financial transactions, whether in card form or code, will be the main growth area for plastic cards, even when heavily disguised as services such as Medicare. They offer convenience, and some users prefer them because they provide more security than cash and can be more easily used in keeping records of expenditure, particularly for travel and entertainment.

There is a strong case to be made out for holders of cards with magnetically-inscribed information to be wholly aware of that information and its purpose. The right to privacy on the plastic card is exactly the same as that which should be accorded to a personnel record or a credit rating held on an electronic databank.

Australia has not yet ventured very far with legislation to protect the individual in these matters, although Britain and European countries are endorsing stringent regulations and controls on rights of access with appropriate legislation. The public may be justifiably suspicious of moves which, though they may start with a seemingly innocuous licence card, can be extended to affect deeply the private life and affairs of the individual. **m**



# THE MOST BIZARRE MARKETING CONCEPT I HAVE SEEN

LET'S talk about the **floppy-disk-drive battle** and about the ANSI X3B8 standards committee.

If you want an **excellent** background report, write to Dennis Hitchens, **Hewlett-Packard Australia Ltd**, Joseph St, Blackburn, Victoria 3130. Ask for the report "Why The 3½in Micro-floppy Will Be The Next Industry Standard".

It was written by Kathy Kimball of HP's Greely Division in Colorado, USA.

Let me just quote the first three paragraphs of this 13-page document. I think this is the most succinct representation of **technological trends** I've read — ever. Since it is a backgrounder for the press, I could simply say this myself and sound like Mr Slick. See which publications lift it as if it were the writers' original thoughts:

"Increased speed, capacity and reliability in ever-shrinking sizes at lower prices — these are the forces that drive the evolution of high-technology products.

"Today, while these forces still prevail, a broader trend is sweeping the industry and that is standardisation. Standards are essential for the efficient operation and growth of every segment of the computer and electronics industry. They allow for the mass production of compatible parts and eliminate the need for expensive redesigns and, in turn, reduce the cost of high technology goods to manufacturers, OEMs and consumers.

"Moreover, the creation of standards paves the way for universal compatibility among dissimilar products. Today this is particularly important since consumers are demanding hosts, personal computers, storage media and networks that can 'talk' to one another irrespective of vendor."

**Bravo!**

The **irony of this document** is that it comes from HP, a company I've

always associated with the motto: "I did it my way." The company still **insists on the arcane** spelling of the words disk and diskette, for example. HP constantly uses a "c" instead of a "k", so the words come out as "disc" and "discette"! I think that this usage summarises HP's true attitude toward standards.

When HP started to use the Sony floppy, that could **hardly be called** a move to a universal standard — it was too early to tell that the Sony drive would become a standard. If anyone tells me that HP had that much foresight, I'd say, "Hah!" I think it just wanted to be different enough to **make people buy supplies** from HP, as it's done in the past. Meanwhile, the company **stumbled on to a hot item** and is now changing its tune — sorry, but that's my opinion.

I will credit the company with not jumping ship on this issue and pushing for a 3½in standard, though.

When you see the vote of the September ANSI meeting, **you see two sides**: The pro 3½in group and the **anti-3½in group led by Tabor** and Dyson with its 3¼in diskette. A list of the 3½in supporters, to me, says it all — **the 3½in microfloppy will be the next standard medium**. Forget the rest. Listen to these names: Apple, HP, BASF, Datapoint, Shugart, Remex, Tandon, Verbatim and Sony. Companies like IBM and DEC abstained (what else is new?). The companies that repudiated the 3½in disk were 3M, Brown Disk, Dysan, Honeywell, Maxell, Panasonic, Syncom, Texas Instruments and Tabor. Strange bedfellows.

With **Shugart and Tandon** building 3½ drives, I look at any attempt to move to a different size to be a lost cause. At this point, I doubt if IBM will choose anything but the 3½in drive for its next disk system. It gave up on its own **screwball 3.9in** drive some months back. And, as **Apple** learned from its bum experience

with its **oddball 5¼in** Lisa floppy, you're better off letting drives be manufactured by those who know what they're doing — who knows better than Shugart and Tandon? While Tabor has a beautiful piece of equipment and good engineering, it has no track record.

**Old-timers will always** tell you that a lot of companies can make disk drives, but when the production goes up and these companies have to make a ton of them, then the men are separated from the boys. That's the key to understanding the success of Shugart and Tandon.

**Dysan** is the major media supporter and much of the **bucks behind Tabor**. Recently, the company hired one-time manager of the defunct Palo Alto Byte Shop Bob Moody to start a software division. This division will **license the major products** and load them on to the 3¼in media. I've seen the packaging for this stuff, and it's going to cost these guys a pretty penny for this project.

I suppose that the **theory** is that, if you get software on the media, and make a super package, and get it into stores, it will **somehow sell**, despite the fact that nobody uses these 3¼in drives. This has got to be the **most bizarre marketing concept** I've ever seen.

Now I know I'm going to get called by reps from Dyson or Tabor who'll tell me that they have all these manufacturers lined up to use the 3¼in drive. If they really want to get my attention, they'll hint that **IBM will use them** in the next PCjr.

I'd love to see the Tabor drive succeed, but I'm sorry, folks, let's face it, **the Sony system will be the next standard**. If I were a manufacturer, I wouldn't think twice about going with the Sony system. If I were Tabor, I'd take my talented engineering staff and have them design a 3½in floppy drive and **get with the trend** that will make it the most money.

**m**



# ALL THE LETTERS THAT ARE FIT TO PRINT

### Spellbinder response

What a pity Dr William Hall, who reviewed the Spellbinder word processing and office management system in your last issue, was using a three-years-out-of-date version of the product. It is a real pity, because there was no need. Had he returned his original licence agreement, he would have been among the hundreds of contented users who were offered updates to each of the three subsequent versions as they were released.

The doctor was certainly right when he saw the power of Spellbinder. But he never had a chance to see the powerful column-move facility in later versions of Spellbinder. Nor the decimal tabbing, nor the numerical calculation features — where Spellbinder will calculate an invoice, multiplying quantity by price, adding sales tax and keeping the debtor record in a data file.

It is such a shame that Dr Hall did not have the chance to take advantage of Spellbinder's unique "soft-key" approach to function keys. How happy he would have been to have had Spellbinder functions all labelled in highlighted boxes at the bottom of the screen.

And if the doctor would even now like to shuffle through his paperwork, find his registration card and return it to Software Source, he will find out that there is already a completely new manual for Spellbinder and that, about six weeks down the track, he will have a copy of yet another release of Spellbinder (version 5.30) where he will find exciting new features such as footnoting, conditional pagination, built-in spelling and style analysis, as well as even more powerful printing facilities which can drive dot-matrix printers such as the Epson or Itoh.

Like John Glenn in space, the doctor has had a taste of an exciting

new experience. Little does he know that the world now has a Columbia Space Shuttle.

**Greg Lister**

Managing Director  
Software Source Pty Ltd

**Dr Hall replies** — Software Source did not provide an up-to-date version of Spellbinder for review when asked by Australian Micro Computerworld's Melbourne office. Other distributors were most helpful. Although offered several hours on a dealer's 16-bit machine, I had just tutored two secretaries working with Spellbinder on a 16-bit machine which provided more experience than I would have received in a showroom.

Spellbinder is the most powerful and flexible system I reviewed, but it is also the last of the five systems reviewed that I would recommend for the average office worker. As indicated in my review, most of the "new" features mentioned by Mr Lister are to be found in version 5.12. All represent major improvements over version 5.03, but underlying problems still make Spellbinder unsuitable for general use in the office. If product designers could solve specific difficulties cited in my review the package would be an excellent choice for the average office. The problems concern printer control, ergonomics and documentation.

At least through version 5.12, Spellbinder does not support non-standard proportionally printing daisywheels for the widespread Diablo/Qume range of printers. Perhaps the still-to-be released version does.

### VDTs are safe

I was concerned by the implication of insidious radiation hazard in the article The Radiation Question (Australian Micro Computerworld, February, page 100).

Having performed a considerable number of radiation measurements on televisions and VDTs as part of an extensive program of acceptance testing carried out by the Federal and Victorian State Departments of Health over the past 14 years, the answer to the radiation question has been clear for a considerable period and is as follows:

The ionising radiation levels are so low that it is difficult to distinguish them from normal environmental radiation levels; ultraviolet radiation is absorbed in the thick glass screen of the television tube and the levels detectable are low; visible light levels are obviously safe by inspection; infra red radiation, merely heat, is obviously at safe levels, again by inspection; microwave radiation was not detectable, and radiofrequency emission from the EHT generator was measurable, but was about 10 per cent of the level of the most stringent world standard.

In the Cases article, only a handful of incidents, not even shown to be caused by radiation from VDTs, could be presented from an enormous sample of about 30 million man years of working with VDTs (three years x about 10 million users, as given in the article). Surely this is strong proof of VDT safety and not an indictment of hazard.

Information bulletins from the Australian Radiation Laboratory further outline the results of radiation measurements made on VDTs.

**Owen Wilson**  
Templestowe  
Vic.

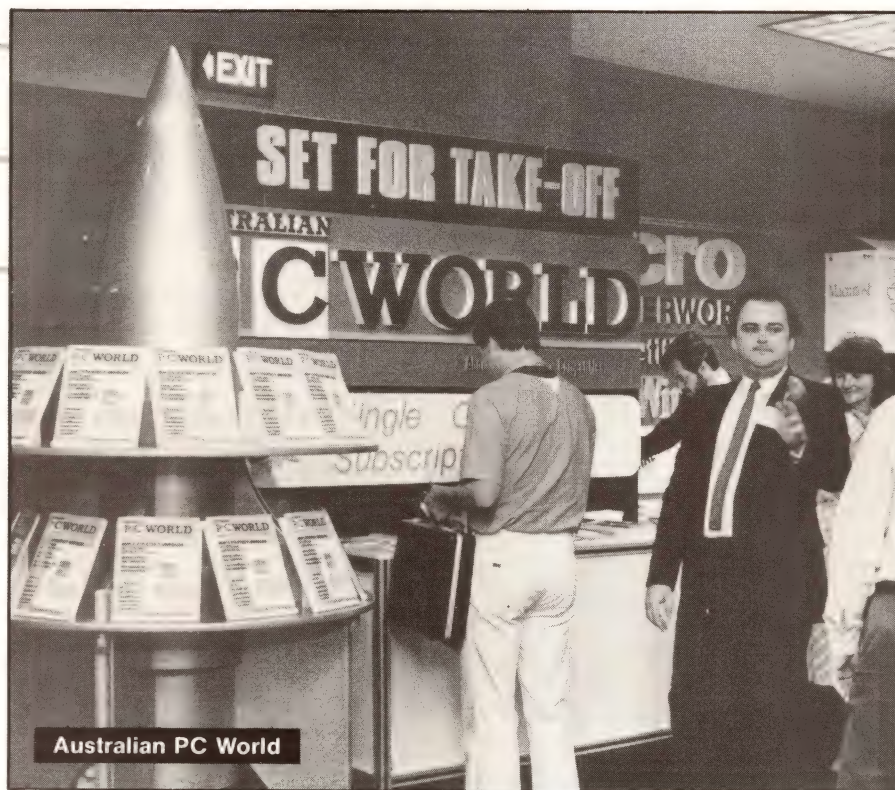
**Australian Micro Computerworld**  
welcomes letters from readers. Letters  
should be addressed to:

Letters to the Editor,  
Australian Micro Computerworld,  
Computerworld Pty Ltd,  
37-43 Alexander Street,  
Crows Nest, NSW 2065.



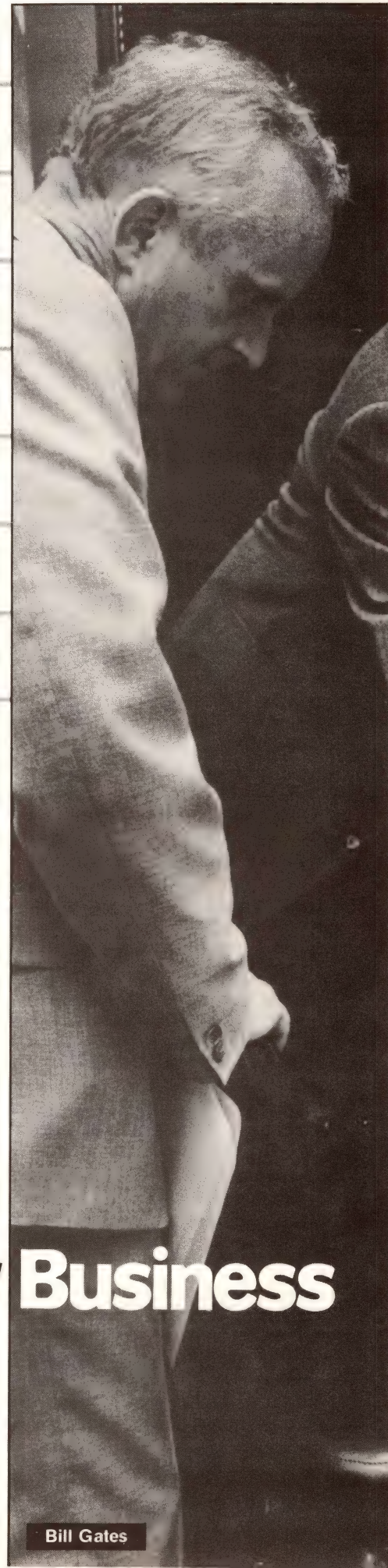


Senator Button



Australian PC World

# There's No Business Like Show Business



Bill Gates





# PC 84

**AUSTRALIA'S leading personal computer show opened at the top of Sydney's Centrepont Tower on Wednesday morning.**

**After the opening, Industry and Commerce Minister Senator Button toured the stands, getting a demonstration of the IBM PC from Microsoft chairman Bill Gates on a deserted IBM stand and picking up a copy of Computerworld's new publication, Australian PC World, launched at the show.**



The first day of the show attracted most of Sydney's committed microcomputer users, who were confronted with a wide range of 16-bit systems. PC enthusiasts, disappointed not to find any new product on the IBM stand, showed most interest in Sperry's new PC and the Tandy Model 2000.

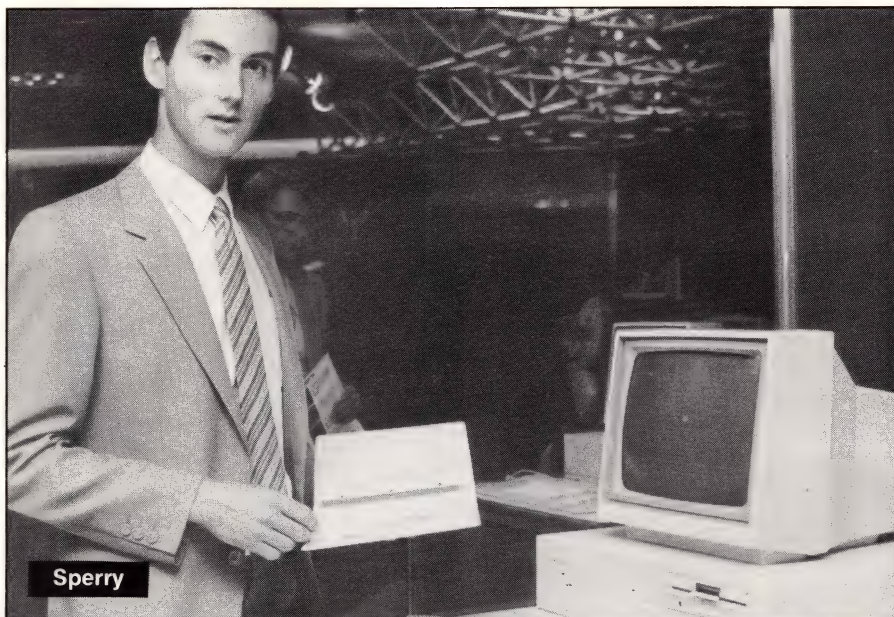
Tandy's systems look much better in their new white and black cases than the old silver and black.

Apple, which understands that show visitors want hands on, attracted the largest crowds, charmed by Macintosh and the repackaged Lisa.

Portable computing is still alive and well, with the born-again Osborne Executive, Commodore's Executive, the Portable Computer Co's colorful portable, Amust's Executive 816 with 10M-byte hard disk and Nec's briefcase 8201 attracting attention.

A new generation of dot matrix printers was on display offering improvements in speed, print quality and price.

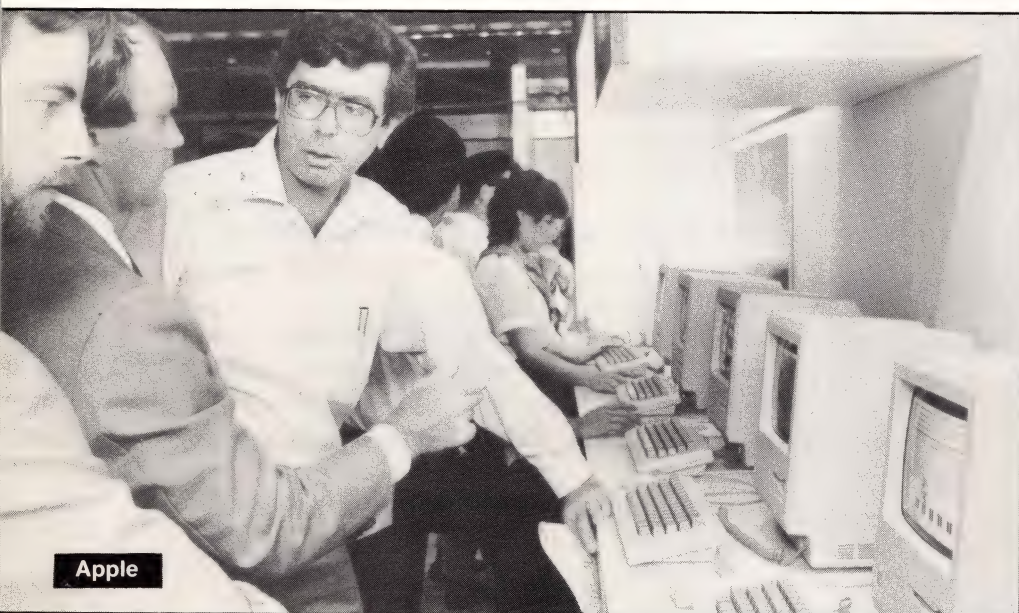
Arcom Pacific's release of Concurrent CP/M 86 was the most impressive new software product, providing users with four sessions at the same time.



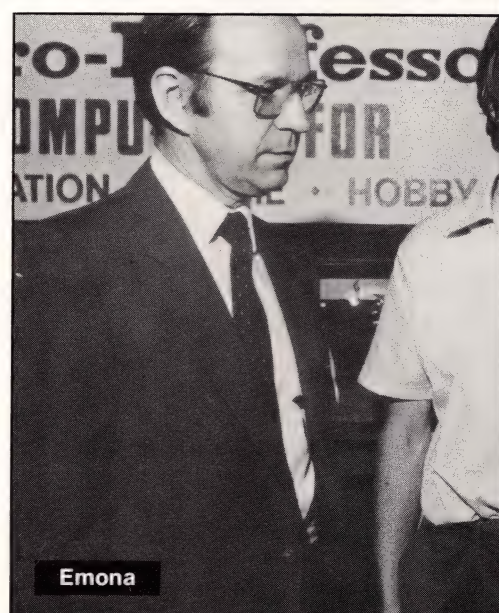
Sperry



Commodore



Apple

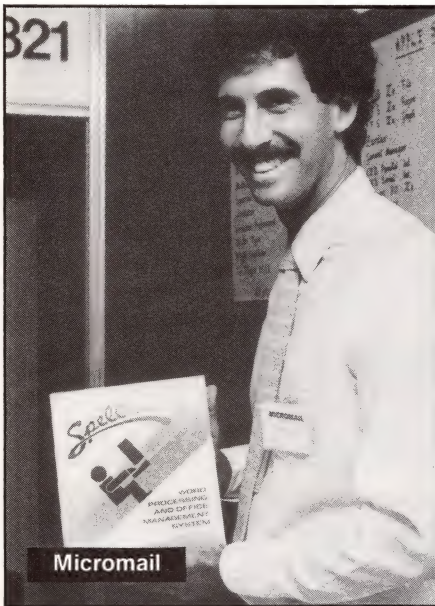


Emona

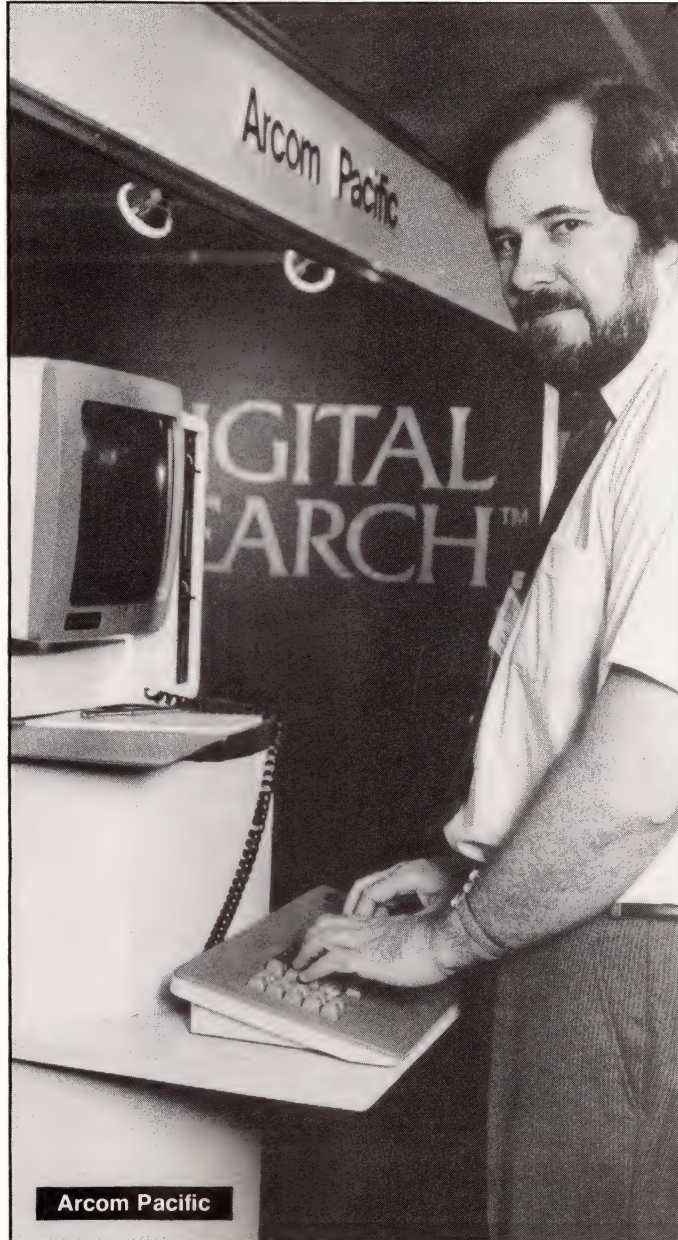




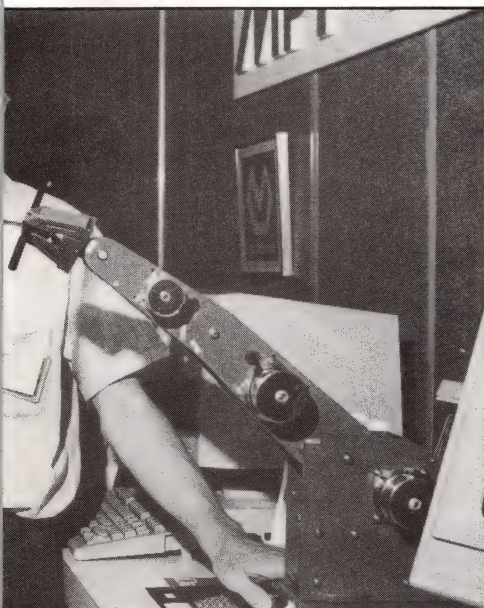
IBM



Micromail



Arcom Pacific





Most of the large software distributors were present, with Imagineering putting a lot of effort into Visi On. The professionalism of local distributors has improved over the past year, particularly in the home and entertainment market. Computer Classics — about to become involved in the relaunch of the Australian Beginning — is a good example of the progress in this part of the market.

There weren't many local software companies at the show, but Attache, IAL and Microstat did well, emphasising the importance of exposure at these events for local companies.

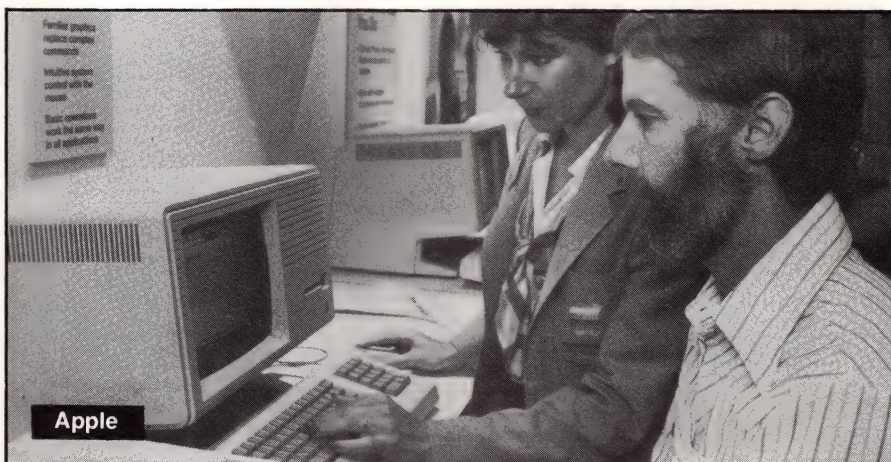
The explosion in computer book publishing was evident from the vast number of books, with many publishers and bookshops at the show.

After four days and 26,000 visitors, it was clear that the personal computer show is still the most important event in the Australian microcomputer calendar, setting the trends for the rest of the year.

**m**



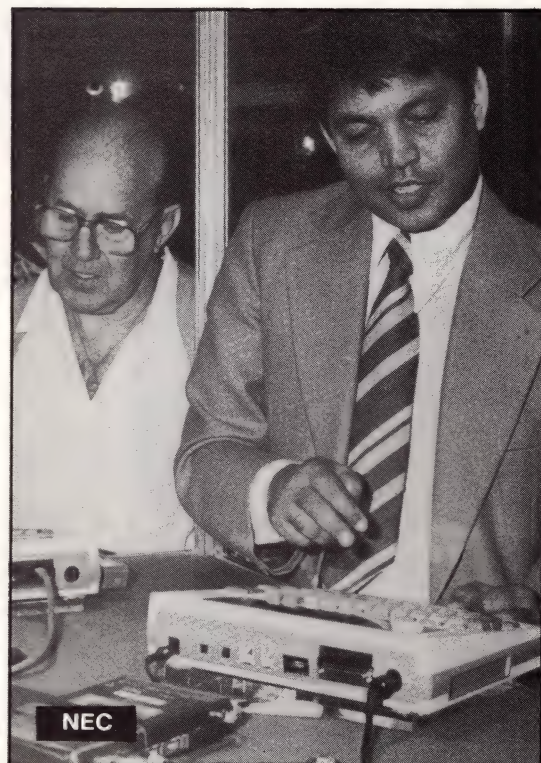
**Attache**



**Apple**



**Tandy**



**NEC**



# We'd like to raise the subject of letterheads.

Maybe previously you've had to sacrifice prestige for the practical advantages of continuous word processing stationery.

## Not any more.

Now A4 Contiprint, the continuous word processing paper from Carter & Taverner with features such as true A4 size, 'Finedge' and 'Carrypak' – the convenient way to buy continuous stationery, now offers an optional feature that has never been available before on continuous stationery format, embellishment.

The embellishment techniques of embossing, steel diestamp printing and hot foil stamping have now been perfected in Australia for continuous stationery by Carter & Taverner. Now your letterheads, or in fact any continuous word processing material can take on the prestigious quality and beauty of a three dimensional art form, adding variety and richness to the work of today's graphic designers or your own personal design.

Now there's no need to sacrifice prestige for practicality. Carter & Taverner offer both. So for all your continuous word

processing printing and stationery needs, call C&T now for the address of the A4 Contiprint representative in your state, ask about our free letterhead design kit – an invaluable guide to help make your company image, the right image.







TO survive in a world dominated by the IBM PC, microcomputer manufacturers have been forced to adopt one of three strategies: ignore the PC and try to carve a niche not wanted by IBM; build a PC clone, offering all that IBM offers, but at a lower price; or build a machine compatible with the PC, but with additional features to provide enhanced performance compared with the PC.

Texas Instruments chose the third option, improving on the IBM PC's operation, ease of use, expandability and price.

### Hardware

The TI Professional Computer is similar in appearance to the IBM PC, configured as a system unit, keyboard and display unit. The system unit is 48cm wide, 39cm deep, 13cm high and weighs 14.5kg.

In the basic version, a single 320K-

byte floppy disk drive is located in the centre, with expansion slots to the left of the drive. A second floppy or a 10M-byte hard disk drive can be installed in the system unit to the right of the first floppy drive, and two more floppy drives and another hard disk drive can be attached via a backplane connection.

The CPU is an Intel 8088 running at 5MHz, and an optional 8087 arithmetic co-processor is available. The motherboard is loaded with nine TS4164 chips giving 64K-bytes of RAM. A further 704K-bytes can be installed on two expansion boards. There are 8K-bytes of ROM, with space for another 8K-bytes.

The motherboard also contains a floppy disk drive controller capable of handling four floppy disk drives, a keyboard interface, a speaker, a parallel printer port, a 250-watt power supply, and six expansion slots, of which two are short slots

designed to hold specific boards.

The use of the expansion slots is a real plus for the TI PC. One of the two short slots has no access to the backplane and is used for a 64/128/192K-byte RAM board. The other short slot is designed for a synchronous/asynchronous communications board with four serial ports.

One normal slot is needed for the CRT controller board, leaving three slots vacant for a 256/512K-bytes memory board, Winchester disk controller (two drives possible, each of 10M-bytes), analogue interface board, or internal modem board.

The color/monochrome graphics options do not require any slots since they piggybank on to the CRT controller board.

The keyboard is 51cm wide (3cm wider than the system unit), 20cm deep, 3.5cm high (adjustable to 8cm) and weighs 0.9kg. It has 97



**Texas Instruments, one of the world's largest electronics companies, has not had a happy time making personal computers. After the demise of its TI 99/4 home computer, the company has come back with a solid PC-compatible product. For TI, it may be second-time lucky.**

# For a Few Dollars More

keys, grouped by function, including 12 programmable function keys, a numeric keypad, and a separate cursor control cluster. The CAPS LOCK key, unlike IBM's key, has an indicator LED.

The display unit is either a 12in green phosphor monochrome monitor or a 13in color monitor, with 720 by 350 pixels resolution. The monochrome monitor is 37cm wide, 34cm deep, 29cm high, and weighs 7.7kg. The color monitor is a little larger but almost twice as heavy. Both draw power from the system unit (and are designed to sit on the top of the system unit) and connect to different sockets so that both can be used at the same time.

Both monitors display 80 characters by 25 lines, with each character made up of a 7 by 9 pixel array in a 9 by 12 pixel cell. The video memory is organised as 2K by 16 bits, with seven bits used as Ascii

character information, 2 bits for character set selection, and seven bits to select character attributes (blink, blank, underline, reverse video and intensity level).

The graphics option is described as either one-plane or three-plane. The former is for monochrome only, but still gives a 720 by 350 pixel resolution, while the latter supports eight colors with the color display or eight shades with the monochrome display.

The neutral beige color of the TI PC will not alarm any executive concerned with color co-ordinating his office.

## **Installation**

The unit supplied for review was configured with 256K-bytes of RAM, a single 320K-byte floppy disk drive, a 5M-byte hard disk drive (now superseded by a 10M-byte drive), three-plane graphics on the CRT

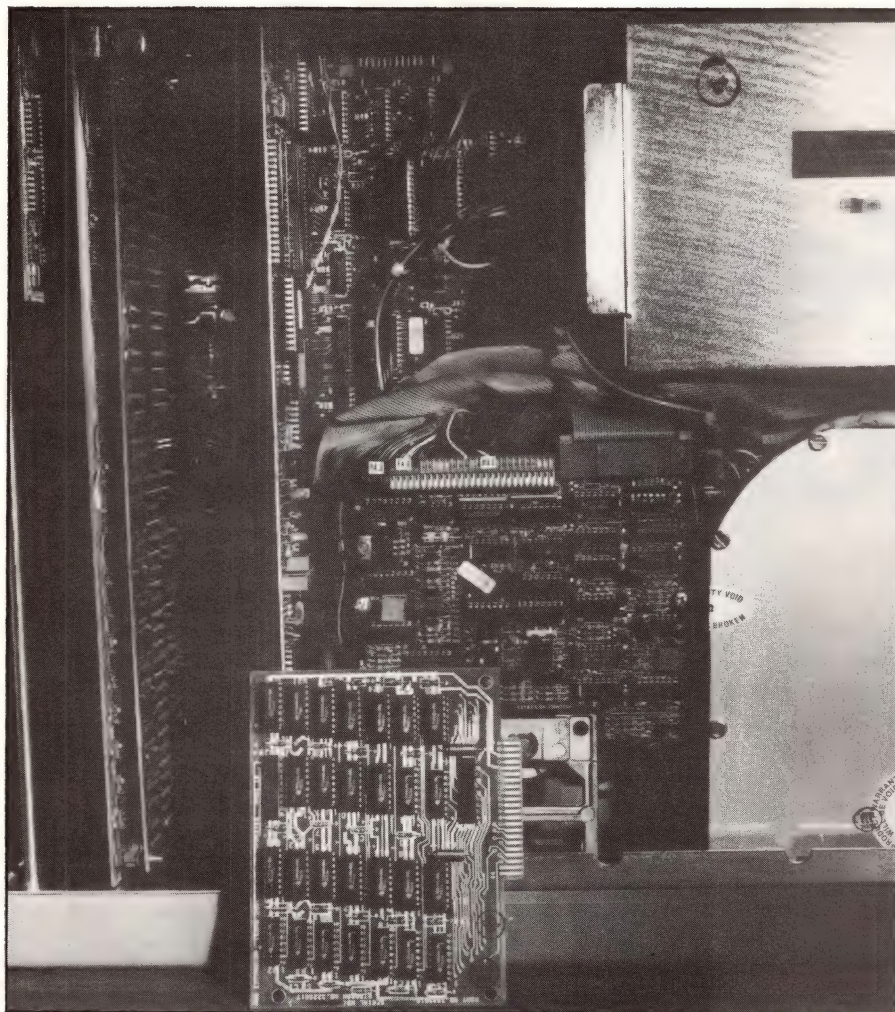
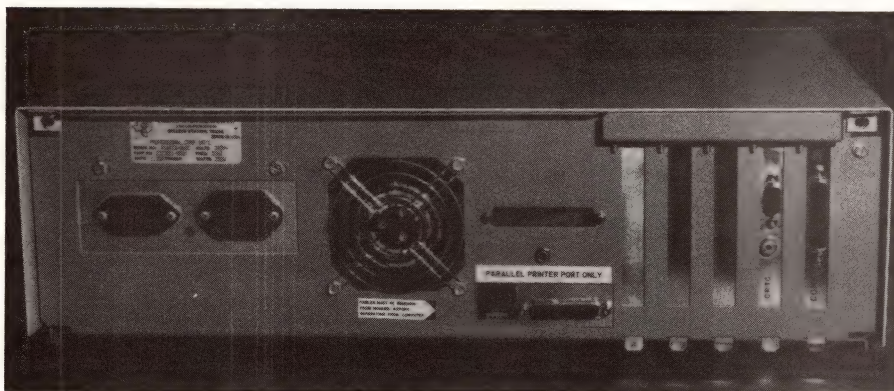
display board, a synchronous/asynchronous communications board with one port enabled, and a color monitor.

Texas Instruments also supplied a pre-release version of the TI855 dot-matrix printer with interchangeable character fonts, similar to the Toshiba P1340 in operation.

A small Getting Started booklet packed with the system unit and keyboard explained how to unpack the unit, described what documentation should have arrived with each option and directed me to the Operating Instructions manual for details on how to assemble the unit.

Texas Instruments appears to hold the philosophy that any option to the Professional should be installable by the user, and the hard disk drive documentation was written with this in mind. The procedure for inserting the drive into the system unit, testing it, and then ►





**TOP:** Backplane of system unit showing power sockets, fan, and knockout panels.

**CENTRE:** Inside of system unit, with RAM card removed. Double card on left is 3-plane color graphics option.

**LEFT:** TI855 printer with one font pack installed.

formatting it, is explained in great detail, although a user would normally expect the dealer to perform the installation.

## Operation

The unit was delivered with the hard disk drive already configured and with the software, including a dealers' demonstration package, installed. On power-on, an automatic self-test procedure lasting about 15 seconds checks the keyboard, RAM, motherboard and any additional boards installed. The operating system is then booted from the hard disk drive, drive E, and the MS-DOS auto-executing file (if present) is run.

The hard disk drive seemed fast to read from and write to, but this is only a subjective appraisal since complete timing specifications are not provided, even in the technical reference manual.

The floppy drive was as noisy as I have come to expect of floppy drives. The drive door, when it was open, was too close to the overhanging top of the system unit case, making it difficult to insert a finger between the door and the case in order to close the door.

The technical reference manual describes how up to four floppy disk drives can be installed, with capacities of 320 or 640K-bytes set by jumper on the drive controller. Any combination of drives is allowed, provided that drive A is 320K-bytes.

The keyboard was a joy to use! It uses the standard Selectric-style layout, with the Shift Keys where they belong, to the right and left of the space bar. The Alt and Control keys are together at the bottom left, and the Insert and Delete keys are at the top left above the numeric keypad out of harm's way. A row of 12 function keys, in groups of four, runs across the top of the keyboard, and a diamond-pattern cursor pad with the home key in the middle sits between the main keypad and the numeric keypad.

The keys are light to the touch, but with tactile feedback at the top of the stroke. The F and J keys have a small notch to help touch-typists home in to the home row. The sculptured



shape of the keys makes them appear to be set lower than the keys on other computer keyboards, and the minimal clearance between the keys, combined with the lack of color-contrast between the keys and the fascia of the keyboard, somewhat overwhelms the user.

The color display can only be described as fantastic. If the three-plane graphics option is chosen, the display is always in high-resolution graphics mode, with the text display unaffected. Graphics will co-exist with text on the screen without either being affected, and some graphics will overwrite text without destroying it if the text is in a contrasting color.

The construction of most graphics displays was incredibly fast (at least to someone who is used to the color graphics on an IBM PC). The demonstration programs, although written in a version of Microsoft Basic 1.1, created most of the graphics displays as quickly as many demonstration programs written in assembly language.

The convenience of having readable text and high-resolution color graphics on the same display cannot be overstated. Lotus 1-2-3, for example, actually seems a worthwhile package when it runs on the TI PC, with both text and graphics being clear and sharp.

A single annoyance was the noise generated by the hard disk and the cooling fan, a problem reported by other reviewers of the 5M-byte hard-disk version of the TI PC. I am not surprised that Texas Instruments has discontinued this version in favor of the 10M-byte hard disk version. I did not notice any excessive noise in either the floppy disk versions or 10M-byte hard disk versions I examined.

The Texas Instruments 855 printer was an unexpected bonus. I had been looking forward to reviewing the new Toshiba P1340 printer (the little brother to the P1350), but the TI855 provided all the facilities that the P1340 will provide with greater ease of use.

The TI855 has both tractor and friction feed, sockets for three font modules built into the front panel, a

choice of serial or parallel operation, and a touch-sensitive control panel. Draft- and letter-quality printing modes can be selected through software or from the printer's control panel. High-resolution raster graphics (up to 144 dots/in) can be printed, also under software control. The review printer would not print a graphics screen dump, since that facility required MS-DOS 2.1 which was not available. But a program written in Basic provided a creditable demonstration of the printer's abilities. For text, the printer was fast (150 char/sec) in draft mode, although the unidirectional two-pass letter-quality mode averaged less than 40 char/sec.

### Software/documentation

Texas Instruments provides customised versions of all the major software packages that run on the IBM PC (450 are listed in the TI software guide) as well as the MS-DOS, CP/M 80, CP/M 86, Concurrent CP/M 86, and the UCSD p-System operating systems. The Microsoft and Digital Research languages, IUS and Peachtree word processing and accounting software, Lotus 1-2-3, and the Sorcim and MicroPro packages are included. Most of these can be bought from third-party suppliers in the original manufacturers' livery rather than TI's IBM PC-style manuals.

Unfortunately, not all this software is available in Australia. For example, MS-DOS 2.1 was not available for review, but was released in the US last November.

Five packages were delivered with the TI PC: MS-DOS 1.1, EasyWriter II (with EasySpeller II), Multiplan, MS-Basic 1.1, and TI TTY Communications 1.2. Generally, all the packages performed as they have always performed, but with some minor (and occasionally) surprising differences.

MS-DOS 1.1 is virtually the same as the original Microsoft product, but with some commands missing or changed. The Diskcopy command will not automatically format a new disk, for example, but needs to be directed via a switch in the command line. The Comp com-

mand has been changed to Filcom, and the Exe2bin, Files, Graftabl, Mode and Recover commands are missing (at least they are not in the manual). Since only one keyboard style is supported in any country, there is no keyboard re-definition command.

The MS-DOS documentation is much reduced from the Microsoft version. Part of the reduction is due to the absence of that information only applicable to the IBM PC, and part due to a simplification of the command descriptions. The overall effect is a less imposing manual that is easier to use for the novice but less useful for the user who wants to get deeper into the system.

The EasyWriter word processing package is unexceptional in design but responds quickly to user commands on the TI PC. An interesting feature is that it defaults to a green screen format when run with a color monitor.

I was surprised to find that only the first 10 function keys were used. A list of EasyWriter and EasySpeller functions and their key combinations is provided, to be attached to the left of the main keypad.

The manual is written in a tutorial format, with extra information sprinkled between the tutorials and in a reference section after the last tutorial. Although the manual is easy to read, and the tutorials easy to follow, because the information concerning any command may be spread across several sections, tracking down the solution to a problem is not easy.

MS-Basic is actually a modified version of Microsoft Extended Disk Basic. It works in much the same way, except that some commands are simplified because the TI PC is always in graphics mode. Programs written in MS-Basic run slightly faster on the TI PC than do programs written in Basic on the IBM PC, but the difference is not extreme.

Once again, the documentation lets the TI side down. Many commands are not mentioned in the manual, although they do exist — I ran several programs written for the IBM PC without any modifications ▶



# PUBLISHERS BLUNDER!

## UNI CO-OP QUE BOOK SALE

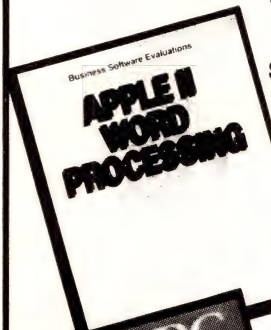
THE  
Co-op  
BOOKSHOP

Best selling books now available at **COST PRICE!**

A warehouse contract problem enables us to make a never-to-be repeated offer, **only while stocks last!** Top quality Que Corp. books **at cost price or less!** The warehouse mistake **is your benefit.** Grab these best selling high quality books while their prices are low. (N.B. Further stocks will be back to normal prices!)

AT LEAST **33% OFF**

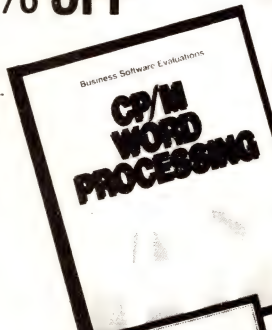
\*Bestselling titles \*\* Very limited stock available



**S.10**

Specific, highly useful information so you can determine **exactly** what word processing you should buy for your Apple **before** you invest valuable money and time.

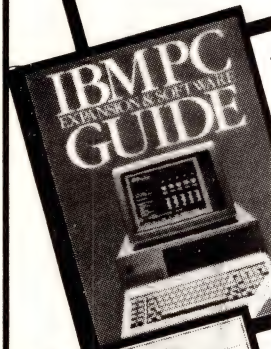
Was \$39.95 Now  
**\$14.99**



**S.12**

The intelligent buying guide to word processing with comprehensive, easily readable evaluations of word processor, spelling corrector, and document-maintenance software packages.

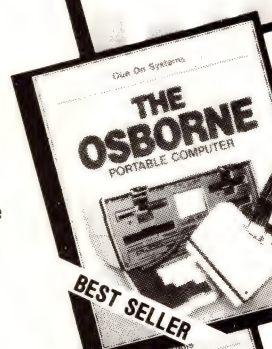
Was \$33.50 Now  
**\$13.50**



**\*S.14**

The definitive source of information about software, hardware, supplies, and services for the IBM PC and XT. Thousands of product descriptions and multiple indexes make this book an excellent investment for all PC users.

Was \$33.95 Now  
**\$19.99**



**\*S.15**

A comprehensive description of the entire Osborne portable computer system. If you want to get the most out of your Osborne computer, this is the book for you.

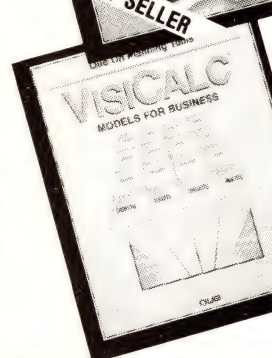
Was \$25.95 Now  
**\$15.99**



**\*S.18**

Recommended by many professionals, this book is an excellent resource for any SuperCalc user.

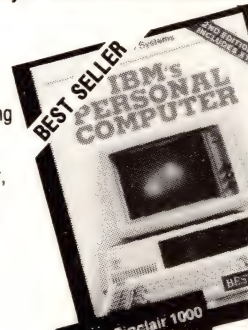
Was \$29.95 Now  
**\$19.99**



**S.19**

Clear step by step instructions show you how to get maximum benefits from your electronic spreadsheets.

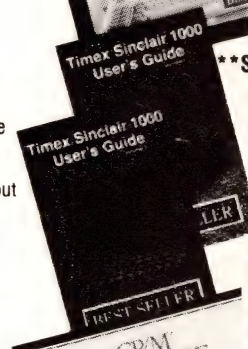
Was \$29.95 Now  
**\$19.99**



**\*S.13**

The most popular book ever written about the IBM Personal Computer now in its second edition. Many IBM dealers recommend this book as the perfect introduction for new owners of the computer.

Was \$29.95 Now  
**\$19.99**



**\*\*S.16 Vol. 1**

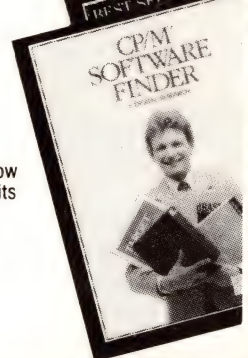
Was \$19.95 Now

**\$12.99**

**\*\*S.17 Vol. 2**

Was \$25.95 Now

**\$15.99**



**S.20**

For CP/M users, this book is a superb resource. Descriptions of software include system requirements and the appropriate version of CP/M for each program.

Was \$29.95 Now  
**\$19.99**

### \*INSPECT THESE AT YOUR CLOSEST BRANCH

- TECHNICAL BRANCH 831 GEORGE STREET, SYDNEY PHONE: 211 0561 • 80 BAY STREET, BROADWAY, N.S.W. PHONE: 212 2211 • NSW INSTITUTE OF TECHNOLOGY • NSW UNIVERSITY • SYDNEY UNIVERSITY • ANU CANBERRA
- WOLLONGONG UNI • CANBERRA CAE. • MACQUARIE UNI. RYDE • ARMIDALE UNI (U.N.E.) • NEWCASTLE TECH.
- NEWCASTLE UNI. • RIVERINA CAE. (Wagga Wagga) • MITCHELL CAE. (Bathurst) • GRIFFITH UNI. (Qld.) • GIPPSLAND IAE (Vic.)

### AVAILABLE BY MAIL ORDER!

☐ Please send me the following books by return mail

..... \$ .....  
..... \$ .....

Add postage: \$3.25 N.S.W. \$4.75 elsewhere. \$ .....

Cheque/Postal Order enclosed

or Bankcard No. ....

Send to:

UNI Co-op Mail-Order P.O. Box 54 BROADWAY, NSW. 2007

☐ Place me on your free mailing list for 12 months

NAME .....

ADDRESS .....

STATE .....

P/CODE .....

SIGNATURE .....

Expiry .....

AM 4/84



except to the graphics commands, and using some of these missing commands (such as Beep, Gosub, Date\$, and Time\$). The manual provides few illuminating examples to help the novice user, and gives none of the additional information that an advanced programmer would require.

Because of hardware differences between the TI PC and the IBM PC, ROM calls for the two machines are different, and the TI PC technical reference manual strongly suggests that only operating system calls be used.

The TI version of Multiplan offered no surprises in operation, defaulting to the expected green screen. Although labelled as version 1.1, it is actually only version 1.04.

The manual is a direct copy of the original Microsoft manual, missing only the opening section that describes the location of Multiplan commands on various systems' keyboards. A small booklet included in the disk pocket of the manual lists the TI PC keys used for the TI version. Once again, only the first 10 function keys are used.

Overall, the level of documentation for the TI PC proved inadequate. Although the minimum necessary information is provided, rather than include those details pertinent to the TI PC, Texas Instruments has chosen to ignore any hardware-specific information that could be used by an advanced programmer or systems developer. Technical details are especially noticeable by their absence.

A technical reference manual — preliminary release only — is available, but even it lacks information such as data transfer rates for the disk drives.

## Support

The level of support provided by Texas Instruments is substantial. Although the dealer is supposed to be the primary contact for a user, TI's own support staff are available. Additionally, TI runs seminars to provide hardware and software familiarisation for dealers, and even the marketing personnel appear to be knowledgeable about the TI PC.

## HANDS-OFF COMPUTING THE TI SPEECH-COMMAND SYSTEM

MICROCOMPUTER owners once had to be satisfied with cursor control keys or light pens if they did not want to enter commands through the keyboard. Then innovative designers invented mice of various pedigrees and touch-sensitive display screens. Texas Instruments has taken user-friendliness a giant step forward with a computer the user can talk to, and get more in return than a blinking cursor.

The TI Speech Command System is actually four sub-systems, not all involved in speech recognition. It incorporates a dictation file system able to store up to eight hours of speech on a 10M-byte hard disk, a telephone answering system more flexible than any auto-answering machine, a calendar that automatically reminds the user of appointments, and a "transparent keyboard" system that promises the busy executive a completely "hands off" approach to microcomputer use.

The core of the Speech Command System is a double circuit-board occupying one of the TI PC's expansion slots, and using Texas Instruments' proprietary speech chips. Either a standard microphone, or a combination headset with microphone and earphone, is attached to the board to provide the oral input. A telephone can also be used to give the user remote spoken access to the computer.

The transparent keyboard is the most exciting sub-system of the Speech Command System and, although not unique to Texas Instruments, it is the most usable spoken command system yet developed for microcomputers. It has a capacity of 50 words or phrases per vocabulary (with each word or phrase being the

equivalent of up to a 40-char typed-in command), and nine vocabularies that can be linked in the one application.

To use the transparent keyboard, the user follows three menu-driven steps. First, the user decides which commands he or she needs to operate the computer or the application package. The commands can be either single letters, one-word commands, or a string of commands (up to 40 characters) from the application package.

At the second step, the user decides which spoken key phrase will represent each program command.

Finally, the user speaks each key phrase up to nine times while the computer digitally records the voiceprint for that phrase. The match between the voiceprint and the spoken phrase can be tested and individual phrases re-recorded to improve the comparability of the two. There is no limit to the number of times a phrase can be re-recorded, with each recording improving the quality of the voiceprint.

In operation, the transparent keyboard system is eerie to observe, and seems almost like a trainer directing a dog. Provided that the voiceprint matches the spoken command, the application package responds as quickly as it would to keyboard entry.

Although the Speech Command System is expensive at \$2950, it would be worthwhile in applications where hands-off control of a microcomputer is necessary, either because both of the user's hands are occupied or because the user cannot or will not use a keyboard. And speaking to a computer is easier than touching, and even more natural than using a mouse.



Repairs to a faulty TI PC are normally done via module replacement through the selling dealer, although alternative arrangements should be available as soon as the dealer network is stabilised. Texas Instruments has not ignored the need for reliable service and support, and has made this a primary criterion for dealer selection.

## Conclusion

The important question to ask is how compatible is the TI PC with the IBM PC. The TI PC will read and write IBM PC floppy disks, and has available to it all the major third-party software packages from either Texas Instruments or the software manufacturers. On the other hand, the TI PC cannot run IBM PC programs under MS-DOS 1.1, nor can it use IBM PC expansion boards. Texas Instruments is promoting the development of third-party expansion boards, and more than 30 are now available, including the Persyst range.

Under MS-DOS 2.1, the TI PC becomes more compatible with the IBM PC. In fact, any software running under DOS 2.1 that does not make direct hardware calls should run on both machines, graphics programs excepted. If a user wants graphics, the TI PC, with its flicker-free scrolling and high-resolution color display, is a much better machine for any application. The TI PC supports GSX, so there should be some compatibility with IBM PC graphics written under CP/M 86.

The future may hold much better things in store for the TI PC. The release of MS-DOS 2.1 for the TI PC, and new versions of the various manuals already in production in the US will negate any serious complaints about the TI PC and any reservations a user may have about Texas Instruments' ability to compete successfully against IBM in the personal computer market.

Texas Instruments plans to be the number two company behind IBM in personal computer sales by 1986. With exceptional performance and features and a price-tag 10 per cent lower than a similarly configured IBM PC, the TI Professional Computer is nearly number one. **m**

*Australian*  
**micro**  
COMPUTERWORLD

## HARDWARE REPORT CARD

### TI PROFESSIONAL

Setup

Ease of Use

Performance

Documentation

Serviceability

Poor	Fair	Good	Excellent
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### CPU

Intel 8088 (5MHz).

#### MEMORY:

128K-bytes of RAM  
expandable to 768K-bytes;  
8K-bytes of ROM  
expandable to 16K-bytes.

#### DISK DRIVES:

160/320/360K-byte 5¼in floppy disk drive;  
optional additional (3) floppy drives;  
optional 10M-byte internal hard disk.

#### INTERFACES:

1 parallel port; optional 1 to 4 serial ports.

#### KEYBOARD:

detached with 97 keys.

#### DISPLAY:

25 lines by 40 char monochrome;  
optional eight-color display; optional one-plane or three-plane 720x350 pixel graphics.

#### WEIGHT

23.1kg

#### OPERATING SYSTEM(S):

Optional MS-DOS 1.14, MS-DOS 2.1, CP/M 86 and Concurrent CP/M 86; optional CP/M 80 with additional hardware.

#### SOFTWARE:

450 packages from Texas Instruments or third-party manufacturer claimed.

#### DISTRIBUTOR:

Texas Instruments, 6-10 Talavera Road, Nth Ryde, NSW 2113. Tel: (02) 887 1122.

#### PRICE:

\$4379 (base model); \$10,570 (as reviewed); \$1465 (printer).



The 8th  
Sydney Computer Show  
Centrepont  
22-24 May 1984



# When is 180 CPS faster than 200 CPS?

**W**hen you have this little beauty on hand. **Throughput speed** is what counts: C.Itoh's new low profile dot matrix printer is a high speed performer, prints out with a throughput of 100 LPM (draft mode with pica character).

You'd expect to lose visual quality? No way! C.Itoh's print resolution is sharp, defined, unbeatable — throughout the print head's 100 million-plus character life.

8510S is rugged, sturdy as it is fast, built to take the punishment with heavy duty castings and high quality metal parts throughout. Plastic parts are all high stress.

It's a colourful character: there's even a colour model which gives you up to seven colours, with high resolution graphics of 144 x 160 dots per square inch on all models.

And if you want to use all the features

of your IBM personal computer, C.Itoh has two special versions designed just for the IBM PC.

So make sure you ask the **throughput** of your new printer. And take a close look at C.Itoh. It answers all the questions.



*For further information contact your Warburton Franki Data Products office.*

## WARBURTON FRANKI

A DIVISION OF THE ANI CORPORATION LTD (INCORPORATED IN N.S.W.)

- ADELAIDE (08) 356-7333 • BRISBANE (07) 52-7255 • HOBART (002) 28-0321
- MELBOURNE (03) 699-4999 • PERTH (09) 277-7000 • SYDNEY (02) 648-1711
- AUCKLAND N.Z. (09) 50-4458 • WELLINGTON N.Z. (04) 69-3016



WF/RB1/84

Enter S022 on Enquiry Card



# 'NO FRILLS' ACCOUNTING

**Accounting software is regarded as one of the fundamental microcomputer applications. The size of the market, the enthusiasm of computer dealers and the need for software relevant to local conditions has encouraged many Australian software developers to develop accounting software packages.**

**In Australia, there are more than 30 companies offering accounting software for a wide range of microcomputer systems. We asked nine of the leading accounting software companies if they would participate in a comparative review of their packages.**

**Attache, Future Business Systems, Interactive Applications (IAL), IMS, O'Reilly, Padmede, Peachtree, Power Software (EBS) and Sybiz participated. Each company was asked to supply a copy of their accounting software for an IBM PC XT together with the telephone number of their support service to management consultants Ron Pollak & Co.**

**Ron Pollak and Maurice Bass spent two months installing and reviewing the packages. Ron Pollak recounts their experiences.**

OUR objective in this review has been to provide in-depth analysis of the accounting software packages available on the local market. We have not provided a side-by-side comparison of the packages. Rather we have concentrated on the different and unique features of each package. Wherever possible we have tried to highlight those items which intending buyers would want to examine before choosing.

It is pleasing to report that we believe there were no substandard software packages. We found there were three categories:

**1. No Frills:** This group of lower-priced software packages provide basic accounting features and no more. They are solid, easy to use and easy to install and learn. In this category we include Padmede, Sybiz and IMS.

**2. Business Class:** These are designed for the good management of small business. They provide numerous features and reports which, if used properly, would satisfy the needs of modern management. We saw these to be immediately suitable for most companies with turnover between \$1 million and \$5 million and applicable to quite a few companies outside this bracket. Of course, we must qualify this to some extent by adding that, before buying one of this group of software packages, there is a certain amount of research that should be done to ensure that yours is not one of those businesses

whose operations are so different as to warrant some specially designed software; perhaps one module. In this category we placed the bulk of the software reviewed including Attache/O'Reilly, IAL, Peachtree and Future Business.

**3. Software of the Future:** One system, which really is not a standard accounting package, gave us a taste of the future: EBS from Power Software. You might well say "Who?". We had not heard of them before this review. Power Software has developed an accounting application generator which, in the right hands, can quickly produce a tailored system. Two elements, however, may make you balk at rushing out and buying EBS software. First, the cost is likely to be higher, as there is a large element of development time involved. Second, the company has difficulty in finding the right avenues to sell this interesting but complex package. Without sales, they will not survive, and this is a package which is more likely to need continuing support.

One lesson was learned very early and emphasised time and time again. The software you buy must have competent, local support.

You should note, however, that at least half of the software supplied could not be installed on our IBM PC XT without at least one call to the supplier. A number of these would still not have been reviewed had not the supplier sent technical staff to remedy whatever problems we were



# Nine Leading Australian Packages

having; and we do not consider ourselves average first-time users. We now have an even better appreciation of the problem that computer dealers have in selling and installing systems. Perhaps the best selling software to date has been the easiest to install and support.

## Review issues

One thing that years in computer audit has taught us is that there is no such thing as a watertight computer system, particularly in the micro-computer area. Passwords are provided in most of the systems reviewed, but these are ineffectual as it is likely that they will rarely be used in the small business environment.

There are a number of small enhancements that should be done to improve the auditability of software packages. One reasonably easy enhancement would be the introduction of automatic, sequential numbering of audit trail reports. Management and the auditor would, with such a facility, be able more easily to ensure that they have all audit reports at their disposal. Another easy-to-implement item would be to supply simple control sheets for manual control.

One of our greatest concerns was how to score these packages so that a user could have a reasonable appreciation of the worthiness of the package vis-a-vis other packages reviewed. In this section we would like to make a few points which

identify the dilemma that we experienced with the report card.

We paid no attention to the price of the package when we reviewed it. So the most expensive item stands alongside the cheapest.

How does one rate the advantage of ease-of-use against the provision of the facility to reduce the quantity to a manageable level?

The strength of the manual was often so important to the success of the package that we were reasonably severe on less than top-quality documentation.

At first we examined the latest Attache package which is yet to be released. Although the changes appear to be cosmetic, the package presented us with so many bugs that we had to hand it back and take the older version.

The IMS version is, unfortunately, not their best. We asked for the MS-DOS version and they appear to suffer accordingly.

We can see great benefit from having accounting systems integrate and, therefore, save duplication of effort. The best examples of the benefits of integration are between the stock and invoicing systems and the general ledger and the accounts payable programs.

There are, however, some problems with integration, such as when the general ledger closes later than other systems. Ideally, we like the idea of integrating only those items that suit a particular business. So, rather than blindly choosing

integration, ask yourself: "Do we really need this to be integrated?"

We were also disappointed that efforts had not been taken to integrate accounting packages with other commonly-used software packages such as spreadsheets, word processors and data management programs.

During our review we did not examine the integration features of the packages, basically because of time constraints.

If it seems, during your reading of this article, that we have something against numeric codes, it is possibly because we do not like them at all. In our experience, they are prone to error (is my number 12334 or 12344?) and cause endless problems. They are, in our opinion, an anachronism; something which should be avoided.

Before buying one of the packages reviewed, you will need to be careful that it is the same version as the one we reviewed and that we have not erred in our reporting of the contents of the package. It has been an immense task to review all these software packages and we have taken all care to check the features that we have identified. It is possible that, in some areas, some errors have crept in.

**Ron Pollak and Maurice Bass work for management consultants Ron Pollak & Co, Box 5010, Sydney 2001. (02) 29 5316.**

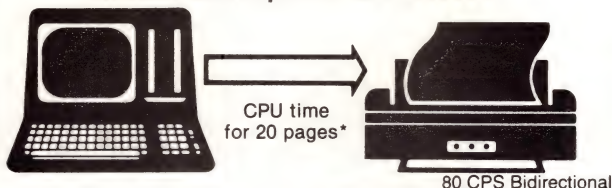


# MicroSpooler™

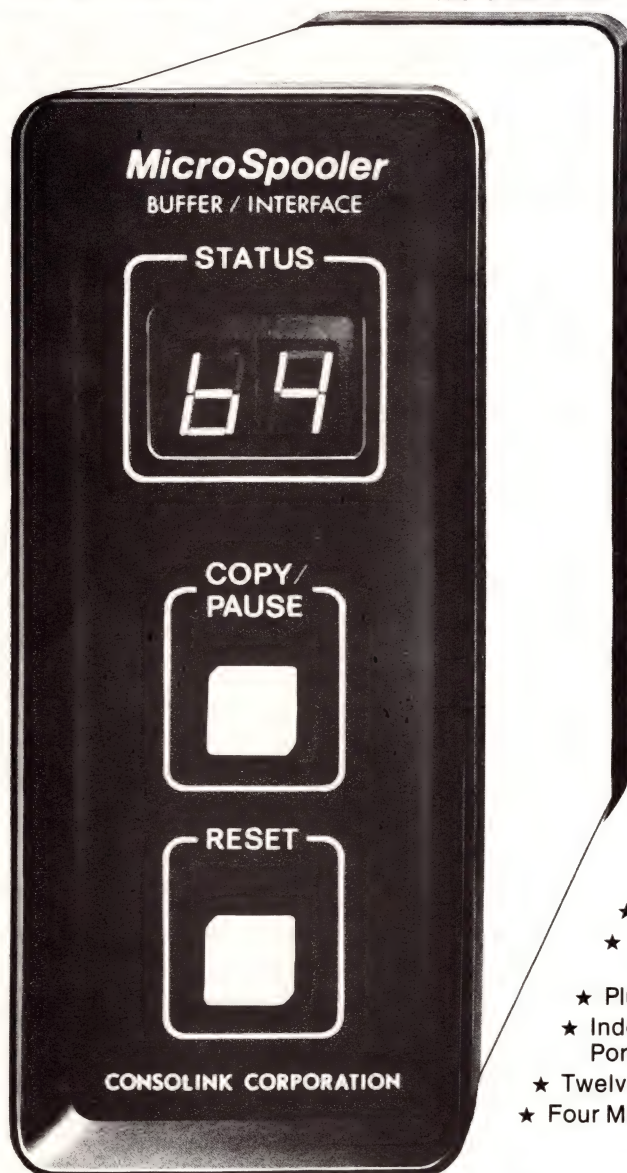
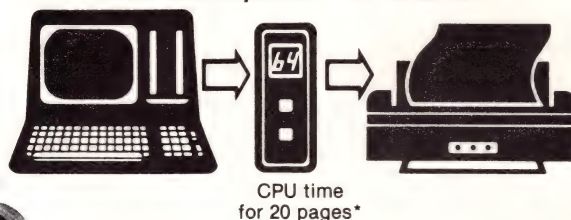
## The Time Saver

By Consolink

Without MicroSpooler 21 MIN.



With MicroSpooler™ 8 SEC.



With **MicroSpooler**, you no longer have to wait on the printer. **MicroSpooler** stores data, then supplies it at a speed the printer can handle.

This saves waiting time; in only a matter of seconds, your computer is free to start the next job, no waiting for the printer to complete the previous work.

### QUALITY — RELIABILITY — FLEXIBILITY

**MicroSpoolers** are made to the high engineering standards that help ensure trouble-free operation. Now available are stand-alone spoolers that can be installed in-line between virtually any printer and any computer.

**EASY TO INSTALL. EASY TO USE. EASY ON THE BUDGET.**

#### Features include:

- ★ 16K Memory: User or factory expandable to 32K or 64K.
- ★ Multiple Copy Function.
- ★ Status Readout: Tells you how much data is stored or how many copies are left to run.
- ★ Pause Function: To let you change paper, make adjustments.
- ★ Self-Test Routine: Performs a comprehensive check of most internal functions and memory.
- ★ Internal Power Supply: No bulky plug adapters.
- ★ Vertical Mount Configuration and Size: Saves desktop space.
- ★ Plug-in connections to most computer combinations.
- ★ Independently Selectable Baud Rates on Serial Ports.
- ★ Twelve Months Warranty.
- ★ Four Models: Any Combination of Parallel or Serial I/O.

\*60 lines per page. Random line lengths. 40 char. line. Assumes CPU can output text at a minimum of 5,800 char. sec. with a 64K buffer.

ALL STOCKS AVAILABLE  
FOR IMMEDIATE DELIVERY

# AB Office Electronics

385 Sydney Rd. Balgowlah N.S.W. 2093

Telephone 949 7195

P.O. Box 272, Balgowlah N.S.W. 2093

A Division of B.W.O.E. PTY. LTD. Incorporated in N.S.W.

Enter R018 on Enquiry Card



# ACCOUNTING PACKAGE FEATURES

THERE are four main components of an accounting system. Of these, three are systems themselves and the fourth, the general ledger, summarises all the financial information of your business entity (including information from the three other systems). These components follow the major elements of your business. They deal with: how much your

customers owe you — (accounts receivable); how much you owe your suppliers — (accounts payable); what you have to sell — (inventory or stock); the results of your efforts — profit/loss (general ledger).

In this section we outline what a typical accounting system should contain. In the main body of the article we ignore the expected and

highlight the advantages, disadvantages or exceptions of the particular package being examined.

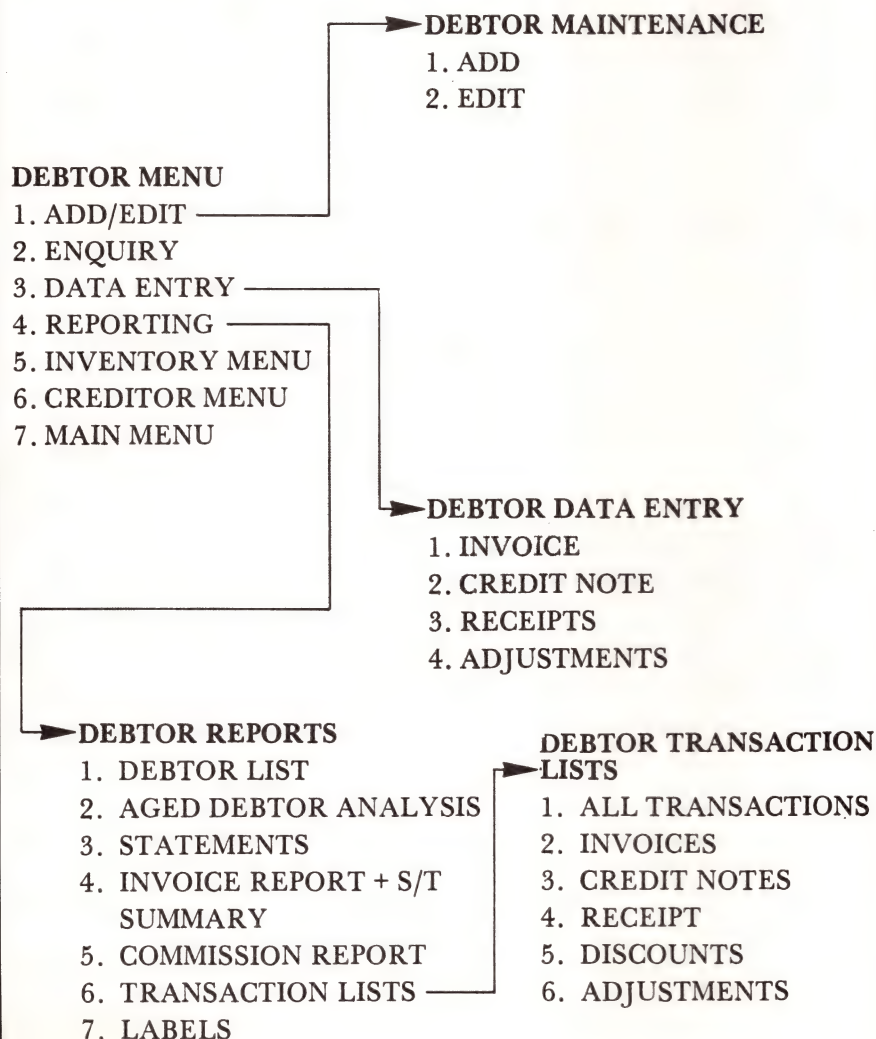
## Accounts receivable

This system holds two main types of information: details of your customers, such as name, address, phone number, contact name, sales tax status, credit limit and price category (where your business gives different prices to different customers), and details about the sales that you have made and the payments that your customers have made to you.

In addition, an accounts receivable system must process the less common, but inevitable, sales returns and adjustments that occur in any business.

When discussing your accounts receivable system with your computer dealer, the question of "open item" or "balance forward" is likely to arise. The most common manual accounts receivable system is balance forward. In a balance forward system, the opening balance for the month is shown on a statement as one figure. This is then followed by a list of all the transactions (sales, receipts and adjustments) that occurred during the month. In an open-item system, the statement lists all the outstanding (unpaid) sales invoices.

On receipt of a cheque from a customer (and after great whoops of excitement from the manager/owner of the business), the receipt must be analysed to see which invoices the customer is paying. In a balance-forward system the accounts clerk must analyse the receipt before it can be entered into the computer. The clerk would first need to identify which invoices the customer is paying. (This task is usually not so daunting, as customers often provide a list of which invoices they are paying.) The next step is to summarise the receipts by the age of the invoices; this is a time-consuming task. Finally, the entry that is passed to the computer has the total amount distributed over appropriate periods. For example, with a total of \$1000, it may be broken down as \$100 under current, \$500 under 30 days, \$300 under 60 days and



Accounts receivable structure



\$100 under more than 60 days.

In an open-item system the clerk needs to identify which sales invoices the customer is paying and enter the invoice numbers to the computer (therefore marking off the invoices as paid).

The open-item system has three advantages over the balance-forward system. It utilises the computer to assist with the aging of receipts, providing your accounts receivable clerk with more time to phone and harass those customers who do not pay their bills. It lists the outstanding invoices on every statement, making the job of both your accounts' receivable clerk and your customer's accounts payable clerk easier, which may assist you in getting your money more quickly. And it ensures that customers' balances are regularly reconciled (they must be reconciled or the system does not work; in a balance-forward system it is not so easy to identify when reconciliations are not being done).

If you have customers who give you round amounts rather than paying on invoice, the balance-forward system is a necessity. In any system which must handle customers who do not provide an accurate list of which invoices they are paying, you are likely to have your work cut out. In the short term, the balance-forward system is more flexible. But a day of reckoning comes, and then you may wish that you had an open-items system and had been handling the problems on a month-to-month basis (something forced on you by an open system).

Obviously, the best accounts-receivable system lets you have both. In this way you can choose which customer is open-item and which is balance-forward.

The main outputs of an accounts receivable system are statements and a list of outstanding balances.

## Accounts payable

Like death and taxes, most companies find owing money to suppliers is unavoidable. It is unusual for an accounts payable system to be unique. Consequently, many businesses that buy accounting systems can readily make use of the standard accounts payable software

### CREDITOR CODE

- (1) CREDITOR NAME
- (2) NBR & STREET
- (3) SUBURB & POST CODE
- (4) PHONE NBR
- (5) PAYMENT TERMS
- (6) LAST PAYMENT DATE
- (7) LAST PAYMENT AMOUNT
- (10) CURRENT PAYABLE
- (11) 30 DAYS PAYABLE
- (12) 60 DAYS PAYABLE
- (13) 90 DAYS PAYABLE
- (14) B/F BALANCE
- (15) AMOUNT BOUGHT MTD
- (16) AMOUNT BOUGHT YTD
- (17) DELETE FLAG

ENTER (P) & (CR) TO PRINT THE ABOVE, (CR) = LIST TRANSACTIONS

### Creditors entry details

### CREDITORS REPORTS

1. CREDITOR LIST
2. AGED TRIAL BALANCE
3. TRANSACTIONS
4. LEDGER
5. REMITTANCE ADVICE
6. LABELS
7. RETURN TO CREDITOR MENU

YOUR CHOICE:

### Creditors reports

### CREDITORS TRIAL BAL. AS AT 23/08/83

ACC.	CREDITOR	TOTAL	CURRENT	30 DAYS	60 DAYS	90 DAYS*	BOUGHT MTD	BOUGHT YTD	PHONE
ACH	A. CHAMPS & DAUGHTER PTY. LTD.	805.62	641.95	45.22	98.45	0.00	761.95	8093.70	03 2394460
ARTH	ARTHUR FIBREGLASS PTY. LTD.	124.38	45.88	0.00	0.00	79.50	200.00	1400.01	03 3862622
BRU	BRUNSWICK PLUMBING SERVICE	222.22	222.22	0.00	0.00	0.00	0.00	8652.33	03 3869977
COMP	COMPUTER GRAPHICS INC.	456.25	0.00	0.00	0.00	456.25	45.25	4523.85	101 998376
DEC	DATA EQUIPMENT COMPANY	23857.76	23857.76	0.00	0.00	0.00	23857.76	25261.75	02 5687454
EAST	EASTERN PERSONNEL SERVICES	69.45	34.89	34.56	0.00	0.00	0.33	455.68	03 43 1707
HIT	HI-TOWN INDUSTRIES	151.36	15.25	45.26	78.40	12.45	15.25	986.25	03 4972666
IMI	IMJ TURBOCHARGERS	5875.24	5875.24	0.00	0.00	0.00	5568.14	12256.45	02 3576677
MAR	MARSHWINK INDUSTRIES	45.25	45.25	0.00	0.00	0.00	45.25	600.25	03 4285532
MELB	MELBOURNE DEMOLITION PTY. LTD.	20.45	0.00	20.45	0.00	0.00	55.00	75.45	03 3768984
PIE	PIERRE JEAN COSMETICS	68.90	12.45	0.00	56.45	0.00	556.00	8945.00	03 45 5397
SAN	SANDHIA AUST. PTY. LTD.	12.25	0.00	12.25	0.00	0.00	45.25	558.25	03 7397294
SIG	SIGNBREAKERS AUSTRALIA	0.00	0.00	0.00	0.00	0.00	16.47	381.90	03 5615333
SLO	SLOW DRILL PTY. LTD.	457.23	457.23	0.00	0.00	0.00	457.23	723.56	03 8742742
STJ	ST. JOHN HOTEL	55.24	55.24	0.00	0.00	0.00	55.24	1524.98	03 5989894
*** TOTALS ***		32221.60	31283.36	157.74	233.38	547.20	31679.32	74439.41	

NUMBER OF CREDITORS = 15

### Accounts payable trial balance

### CREDITOR MAINTENANCE

1. ADD
2. EDIT
3. DELETE

### CREDITOR MENU

1. ADD/EDIT/DELETE
2. ENQUIRY
3. DATA ENTRY
4. REPORTING
5. MAIN MENU

### CREDITOR DATA ENTRY

1. INVOICE
2. CREDIT NOTE
3. RECEIPT
4. ADJUSTMENTS

### CREDITOR REPORTS

1. CREDITOR LIST
2. AGED TRIAL BALANCE
3. TRANSACTIONS
4. LEDGER
5. REMITTANCE ADVICE
6. LABELS

### Accounts payable structure



INVENTORY CODE  
 (1) DESCRIPTION  
 (2) SALES TAX CODE  
 (3) AVERAGE COST PRICE  
 (4) LATEST COST PRICE  
 (5) PRICE 1  
 (6) PRICE 2  
 (7) PRICE 3  
 (8) PRICE 4  
 (10) UNIT MEASURE  
 (11) QTY ON HAND  
 (12) QTY SOLD MTD  
 (13) QTY SOLD YTD  
 (14) COST VALUE SOLD MTD  
 (15) COST VALUE SOLD YTD  
 (16) SALES VALUE MTD  
 (17) SALES VALUE YTD  
 (18) RE-ORDER LEVEL  
 (19) DELETE FLAG

#### Stock entry details

INVENTORY REPORTS  
 1. PRICE LIST  
 2. SALES ACTIVITY  
 3. STOCK TAKE SHEET  
 4. INVENTORY VALUE REPORT  
 5. RE-ORDER REPORT  
 6. RETURN TO INVENTORY MENU  
 YOUR CHOICE :

#### Stock reports

#### INVENTORY VALUE REPORT AS AT 01/08/83

For all inventory items.  
 Deleted items not included.

CODE	PRODUCT	QTY ON HAND	AU COST \$	VALUE \$
BP00002	CEMENT SHEETING	977.00	0.56	547.22
BP00001	PLASTIC SHEETING	33.00	1.60	52.80
BR1	BROOM HANDLES	0.00	1.25	0.00
CA000001	DELUXE CASKET	1.00	15.23	15.23
CE000001	COLOR MONITOR (UBM)	7.00	456.25	3,193.75
CO2	DEC PERSONAL COMPUTER	3.00	7,561.25	22,683.75
DC1	FLEA COLLARS (LARGE)	78.00	0.24	18.72
LG1	LIGHT GLOBES (100W)	1.00	0.64	0.64
TC1	TURBOCHARGING UNITS	11.00	176.95	1,946.45
TEST	TEST	1.00	337.59	337.59
TOTAL INVENTORY VALUE =				29,796.15

#### Stock value report

#### INVENTORY MAINTENANCE

1. ADD
2. EDIT
3. DELETE
4. RETURN TO INVENTORY MENU

#### INVENTORY MENU

1. ADD/EDIT/DELETE
2. ENQUIRY
3. INVENTORY ADJUSTMENTS
4. REPORTING
5. CREDITOR MENU
6. DEBTOR MENU
7. MAIN MENU

#### INVENTORY REPORTS

1. PRICE LIST
2. SALES ACTIVITY
3. STOCKTAKE SHEET
4. INVENTORY VALUE REPORT
5. RE-ORDER REPORT
6. RETURN TO INVENTORY MENU

#### Stock structure

packages. In our experience, it is unusual for an accounts payable system to be the main driving force behind the purchase of a computer system. None-the-less, most businesses that have bought accounting systems will implement the accounts payable module.

An accounts payable system is similar to an accounts receivable system except that, where the accounts receivable system refers to sales invoices and cash receipts, the accounts payable system refers to purchase (or suppliers') invoices and payments.

The main output of an accounts payable system is an aged list of amounts owing to suppliers. Many companies can make use of a computer-generated remittance advice (listing the supplier's invoices being paid), and some can make use of the computer to print cheques.

Accounts payable is, from a data-processing viewpoint, an ideal application for distributed processing, one application that even large companies could cost-effectively use a microcomputer software package to perform.

Some accounts payable packages have reasonably sophisticated facilities to assist in the management of cash payments. And, after all, supplier's credit is the cheapest finance available.

#### Stock

To show how important stock is to a business, try the following accounting exercise. If you buy 100 items at \$1, it costs \$100; sell 50 items at \$2 earns \$100. Profit/loss is nil. The leftover stock is your profit.

Most stock systems tell you what you have in stock at any time, and some tell you not only when you are out of stock but also what amount to buy.

One problem with all stock systems, computerised or manual, is that they are prone to error. And once an error has occurred, only a physical comparison of the computer's records with what is in the store-room/warehouse will identify the error. Once you have found an error, the real problems start as it is then



**SPECIAL OFFER FOR THIS MONTH ONLY**

## Redstone TR002D



- Runs Apple software and also CP/M Software.
- 66 Function keys • Auto repeat on all keys
- Numeric keypad • 64k

The **Redstone** quality is excellent. I give 180 days return to base guarantee with each machine. That covers parts, labour everything. No small print. If you want to pay an extra \$50 I will give you an extra 6 months cover... that's a full 12 months guarantee from the date you buy the machine.

**High resolution green monitor** (18 M/hz)  
**\$220** including tax.

**Slimline disk drives** (National movement)  
**\$350** including tax.

Buy with confidence from Compak!

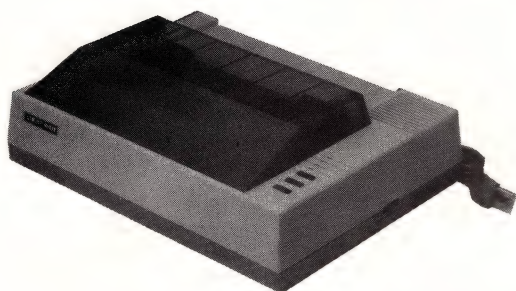


**\$595**

**\$8 COURIER  
DELIVERY**

including tax

## AMUST DT80 Printer



**Lowest price  
in the  
market.**



**\$355**

**\$8 COURIER  
DELIVERY**

including tax



If you know what you want, we probably sell it at the best price. If you don't know what you want — then why not come and talk.

Compak is run by qualified accountants. We know about receivables and payables and cash flow and general ledgers.

We understand the difference between capital and revenue. If you have a problem then we will understand.

We know the sort of problems faced by retailers and manufacturers. We know about the needs of different trades and professions because we fix their problems every day of the week.

So if you are uncertain about talking business with people who just don't talk the same language, why not pick up the phone.

You may just save yourself a lot of heartburn!

# COMPAK

Compak Computer Centre

THE HOME OF THE 816

**350 SOUTH ROAD,  
MOORABBIN 3189  
Telephone: (03) 555 9844**

Enter S008 on Enquiry Card



up to management to locate the reason for the error and correct both it and the cause.

## General ledger

We are now in the land of green eyeshades, quill pens and debits and credits (which is the one that is next to the door?). The task of the general ledger is to summarise the transactions that pass through the other modules. The summary (after mysterious adjustments, called accruals, prepayments, depreciation provisions and so on), tells you if you made a profit or loss.

In addition, the general ledger summarises payments and receipts that do not go through the other accounting modules we have discussed here (such as the purchase of plant and equipment and the receipt or granting of loan money). The product of this summarisation is a statement of your financial position; your balance sheet.

## Other components

In this article we have not reviewed the following types of standard software packages; payroll, bill of materials, job costing, sales invoicing and a host of others. Perhaps the area of most interest which we omitted from our review is sales invoicing. We did this knowingly as we believe that sales invoicing is more than likely to be unique to each business and, therefore, our generalised comments would not be helpful.

Some of the software houses supplying packages also sell modules separately which enhance the products we saw. For example, a report generator would often make amends where the basic or standard reports were disappointing. We did not have the time to review report generators. Those software houses that did provide report generators as part of their basic module did, however, benefit in our review.

All diagrams are reproduced from the HiSoft HiFinance manual.

ACCOUNT NUMBER <CR= Menu> ---

- (1) ACCOUNT NAME .....
- (2) B/F BALANCE LAST MONTH .....
- (3) AMOUNT MONTH TO DATE .....
- (4) AMOUNT YEAR TO DATE .....
- (5) AMOUNT LAST YEAR .....
- (6) DATE OF LAST TRANSACTION .....

## General ledger account entry

## GENERAL LEDGER REPORTS

- 1. CHART OF ACCOUNTS
- 2. TRIAL BALANCE
- 3. GENERAL LEDGER PRINT
- 4. TRANSACTION LIST
- 5. PROFIT and LOSS
- 6. BALANCE SHEET
- 7. RETURN TO GENERAL LEDGER MENU

YOUR CHOICE :

## General ledger reports

## TRIAL BALANCE as at 23/08/83

Page 1

A/C#	SGN	A/C NAME	DEBIT	CREDIT
2	Cr	*Sales		30,975.47
26	Dr	*Cost of goods sold	9,633.60	
50	Dr	*Discounts allowed	50.00	
138	Dr	*Cash at bank	31,957.61	2,316.67
142	Dr	*Trade debtors	7,594.29	
146	Dr	*Stock on hand		1,732.14
182	Cr	*Sales tax		14,211.22
196	Cr	*Trade creditors		
TOTAL			49,235.50	49,235.50

## Trial balance report

## GENERAL LEDGER

- 1. Add/Edit/Delete
- 2. Data Entry
- 3. Enquiry
- 4. Reporting
- 5. Posting Summary
- 6. End of Month
- 7. End of Year
- 8. Main Menu

## MAINTENANCE

- 1. Add
- 2. Edit
- 3. Delete

## DATA ENTRY

- 1. Cash Receipts
- 2. Cash Payments
- 3. Journal Entries

## REPORTING

- 1. General Ledger
- 2. Trial Balance
- 3. General Ledger Print
- 4. Transaction List
- 5. Profit & Loss
- 6. Balance Sheet

## TRANSACTION LIST

- 1. Cash Receipts
- 2. Cash Payments
- 3. Journal Entries
- 4. All Entries

## General ledger structure



# PADMEDE

**Padmede**  
**26 Ridge Street,**  
**North Sydney 2060.**  
**(02) 923 2899.**

THE suite of packages that make up the Padmede accounting system was developed in the United Kingdom. This is particularly noticable in the terminology used throughout the system. For example, the account-receivable module refers to a "daybook" for the more frequently used American or Australian "audit trail". Another example is the use of the term VAT. It does not seem to be a big task to replace the terminology and we wondered why the local Padmede people did not make the effort.

One could conclude that small businesses are more concerned with features than "looks". Alternatively, it is possible that the people buying these packages are not familiar with local accounting terminology, so UK terminology is as acceptable as any; previously they may have left all their accounting to their external accountant.

We did not find the terminology to be much of a problem except with the use of VAT. It does not exist in Australia, so the effort should be made to remove any possible confusion. One thing we did find amusing, however, is the reference to daybook. Now that we are in the age of microcomputers, why do we still find the use of such words as book? It does appear to be a little anachronistic.

## The manual

We found the manual to be a strength of the system. It is small and clearly printed. The manual makes good use of screen formats and facsimile reports to highlight the clearly written text. We thought it would be ideal for a first-time user.

Even though the manual was written for a CP/M-based computer we found no difficulty in initialising and running the system for our MS-DOS-based machine. We would

have saved about a week in time if all the systems were as easy to set up as this.

There is a section in the manual for each module. We note, however, that the names of the modules were not consistent with the printed pages. For example, the module headed Creditors was called Purchase Ledger in the text; Debtors Ledger was called Sales and General Ledger was called Nominal Ledger.

Each module is clearly indexed, has a short, concise outline of the system, some notes for the first-time user, sample reports, instructions for backing up the system, a list of error messages and explanations of what the error messages mean as well as the usual mass of operating instructions.

One gets a reasonable feel for an accounting package by looking at the documentation. We have found this to be true in the case of Padmede. The quality of the system is demonstrated by the manual. The manual is solid but a bit "no frills" in nature; the same could be said of the system.

## Accounts receivable

The system provides a daybook listing of all management trail entries. If one does not batch input and print the daybook after each batch, the management trail becomes a bit

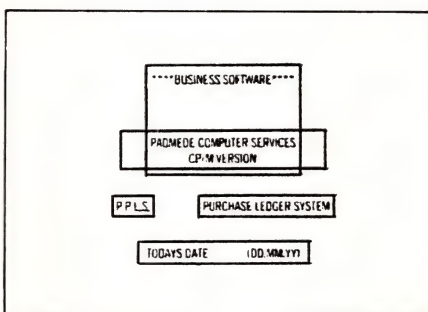
difficult to follow. Note that we refer to "management trail" rather than "audit trail" as we know that it is usually management who need to reconcile accounts and locate and correct problems. The auditor needs only to do this once a year. Management may need to review results each month and, if they are using their system properly, will more than likely need to go behind the figures to get answers. The management trail can be invaluable in this effort. So it is important.

The Padmede accounts-receivable system was one of the easiest packages to set up that we came across.

One bright idea with the Padmede package was the ever-present display of a customer's balance and credit limit while entering sales invoices. It may be a little late for those users who have already remitted the goods and are a week behind in updating their debtors balances (a position most of us find ourselves in from time to time). None-the-less, it gives one the opportunity to take action a little earlier than after waiting for a trial balance at the end of the month.

Padmede is not one of the most highly featured packages on the market. One feature that would enhance their system — one that most computerised debtors systems should provide — is the ability to provide mailing labels. Come on Padmede, that should not be too hard.

The Padmede system allows four numeric codes; between 1 and 9999 for customer codes. This is somewhat limiting as it means that data entry is more error prone; a longer and alphanumeric code is far better.



System start page.

P.P.L.S.	YOUR COMPANY NAME LTD
1	ENTER POSTINGS
2	AMEND SUPPLIER DETAILS
3	RUN END MONTH ROUTINE
4	DISPLAY SUPPLIER DETAILS
5	PRINT PURCHASE LEDGER
6	PRINT TRANSACTIONS LISTING
7	PRINT ALPHABETIC LISTING
8	PRINT DAYBOOK, NOMINAL, VAT OR SALES TAX, AUDIT
9	PRINT AGED CREDITORS REPORT
10	PRINT REMITTANCE ADVICE NOTES
11	AMEND TABLES, NOMINAL, VAT OR SALES TAX RATES
12	AMEND SYSTEM PARAMETERS
13	END PROGRAM
(?) PLEASE SELECT THE OPTION REQUIRED	

Purchase ledger menu.



Padmede does, however, provide an alphabetic listing of customer balances. This is somewhat limited as the system provides only a one-character alpha field upon which to sort.

As far as management information goes, Padmede provides the user with 94 categories over which they can allocate sales. There is also a summary printout at the end of each period which can be used for entry to a general ledger or as a record of the automatic entry of records to the general (or nominal) ledger. Effectively, the 94 categories would allow the small company to get sales results by product line, by Territory/State and (so long as they do not have too many product lines or salespersons) by salesperson. It is, however, limited.

## Accounts payable

We found the omission of a data entry mode for building a supplier file to be discomforting. Yes, you can enter supplier details, but this is done in much the same way as we would expect to have to amend supplier details; by identifying the field number that you want to enter and then entering the information against the field number. The prompt then returns to the bottom of the screen and asks "which field do you want to enter now?". Data entry

4. DISPLAY CUSTOMER DETAILS				CP/M VERSION	
ACCOUNT ?	1	NAME AND ADDRESS			
TRANSACTIONS or (NO TRANSACTIONS)		PADMEDE COMPUTER SERVICES			
LAST STMT →	7.341.25	351, FLEET ROAD,			
TURN-OVER →	5.857.00	FLEET,			
		HAMPSHIRE,			
		U.K.			
TELEPHONE	12345 67890	CURRENT MONTH →	-385.00		
LAST MOVEMENT	19.02.81	MONTH 1	6.967.00		
CLASSIFICATION	1	MONTH 2	319.25		
ALPHACODE	M	MONTH 3	0.00		
TAX EXEMPT CODE*	ABC123456789	TOTAL BALANCE	6.901.25		
(F) ENTER FOR TRANSACTION DISPLAY					

Customer details screen.

1. ENTER POSTINGS								CP/M VERSION	
A/C	(POSTING)	(REF1)	(REF2)	(DATE)	(AMOUNT)	M	CL		
1	1 INVOICE	ABC123	456789	11.10.81	115.00	0	94		
SUPPLIER NAME AND ADDRESS									
PADMEDE COMPUTER SERVICES									
351, FLEET ROAD,									
FLEET,									
HAMPSHIRE									
U.K.									
5% PROMPT PAYMENT									
BALANCE								6.901.25	

Transaction screen.

usually allows the user to step easily through all fields in a sequential order. The accounts receivable package allows the user to do this, so why not the payables system?

A compensating strength of the system, however, is the use of the back space key to retrace one's steps on data entry. We found this to be invaluable.

There is not a great deal of flexibility in producing reports, but the basic reports are all present. We did note that the system did not handle partial payments very well and this, consequently, affected the benefit of producing a remittance advice.

## Stock

The stock code can be comprised of eight alphanumeric characters. There are 94 possible product groupings and as many different types of units of sale as you can ever want (up to 99). Each product group can be named with a 15-character name. We cannot make up our mind whether or not this is sufficient space. Perhaps it depends on the nature of your business.

The Padmede system provided the ability to over-ride the price for stock issues and returns as did a number of others. We can see where this facility is necessary (transfers between States, goods on consignment and so on) and, in Padmede's case, there was the facility to review transaction profitability to locate possible errors. We were of the opinion, however, that this report may not have been sufficient, and a report of price over-rides may be necessary.

One advantage of the Padmede system lies with its ability to report

2. DISPLAY/AMEND PRODUCT DETAILS						CP/M VERSION	
(TYPE)	(QTY)	(PRICE)	(REF)	(VALUE)			
QUERTY PADMEDE NOMINAL LEDGER							
1	8 CUST ORDER	2	450.00	TTTTT	900.00		
2	9 SUPP ORDER	5	325.00	123456	1,625.00		
3	8 CUST ORDER	3	450.00	ABCDEF	1,350.00		
4							
5							
6							
C/O	QTY	5	S/O	QTY	S/DIFF	Q/FREE	5
C/O	VAL	2,250.00/S/O	VAL	1,625.00/DIFF	625.00		
'1' - '6' - AMEND/EXIT - IGNORE/ENTER - PRODUCT DETAILS							

Amending stock details.

unfilled orders. The user can enter supplier or customer order numbers into the stock system and then, once these orders are filled, match them by reference number to a particular receipt or issue.

The Padmede stock system provides two special management help features. First, it assists management in identifying suitable stock levels; second, management can zero the management information to start afresh.

In assisting management with stock level management, the user keys in a desired stock turnover rate, say 10 times per annum, then the system calculates a minimum and re-order level. This is an intelligent use of the computer's ability to calculate. Our only suggestion would be that Padmede turn the calculations around and have the computer calculate the number of times the stock turns over each given period.

## General ledger

The general ledger seems to be structured for small companies. It has a three-digit code plus two further sub-analysis codes. The subanalysis codes are not accessible from the accounts receivable or payable systems.

The layout of the financial statements can be changed, but one could not really call it a flexible system. The reduced flexibility, however, does provide for easier setup and we were satisfied with the final reports that we produced. We would have liked not to have had the account codes on the financial statements.

We did feel that the manual could provide a bit more assistance on setup (perhaps Padmede could even have provided a sample chart of accounts) and the use of the budget feature.

The budgets can be set per quarter or last year's figures can be used. The user must make a choice between these two types and not have both. This impacts the look of some of the budget reports because, when the user selects quarterly reporting, the balance sheet figures are also divided by ▶



# NUCLEUS.

## The program that writes other micro programs and makes them winners too.



The NUCLEUS program won the 1984 RITA Award in the U.K. The RITA (Recognition of Industrial and Technical Achievement) Award is given by a committee headed by the National Computing Centre, Britain's pre-eminent government computing body.

The RITA Award recognises NUCLEUS as the outstanding software package of the year — across all categories.

The basic reason is its sheer usefulness — and user friendliness. NUCLEUS is a program-generating system for data creation, retrieval, manipulation and reporting. It enables new, customised applications to be produced quickly and easily by non-technical people. NUCLEUS bypasses tedious and

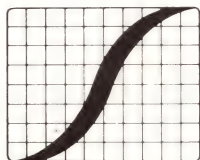
time-consuming coding and debugging.

Software Solutions will show how easy NUCLEUS makes it for anyone to program a microcomputer in Microsoft® BASIC. The range of user programmable applications is enormous; it includes: \*accounts, \*plant hire management, \*asset registers, \*inventory allocations, \*equipment maintenance, \*scheduling, \*fleet vehicle management, \*stocktaking.

You, too, will echo the praise of the RITA Award once you've seen it in action.

Software Solutions (Australia) Pty Ltd, Visionhire House, 144 Pacific Highway, North Sydney 2060. Telephone 957 6211

Microsoft® BASIC is a proprietary product of Microsoft Inc., U.S.A.



## Software Solutions

## Making your computer keep its promises.

Enter S037 on Enquiry Card

Page 46

## REVIEW

4 DISPLAY NOMINAL ACCOUNT				CPM VERSION	
NOMINAL CODE	7	100	SALES REVENUE		
MONTH 1	0 00	1 →	BUDGET QTR 1	26,000 00	
MONTH 2	-18,846 00	2 →	BUDGET QTR 2	-15,000 00	
MONTH 3	0 00	3 →	BUDGET QTR 3	20,000 00	
MONTH 4	-1,666 00	4 →	BUDGET QTR 4	-10,000 00	
MONTH 5	0 00				
MONTH 6	0 00		QTR ACTUAL 1	-18,846 00	
MONTH 7	0 00		QTR ACTUAL 2	-1,666 00	
MONTH 8	0 00		QTR ACTUAL 3	0 00	
MONTH 9	0 00		QTR ACTUAL 4	0 00	
MONTH 10	0 00				
MONTH 11	0 00		YTD	-20,512 00	
MONTH 12	0 00	5 →	LAST YEAR	80,000 00	

1' - 5' - AMEND/ENTER' - UPDATE/P' to PRINT

1' - 5' - AMEND/ENTER - UPDATE/P to PRINT

### Ledger account display.

four. Although most of us would like to have our budgeted overdraft divided by four (this would have been one of the figures affected), it is not realistic to have the system do so unless the Padmede people would like to make a contribution.

The system forces the user to balance each batch of entries (which is good) but, if the user ends up with an imbalanced entry, it is not possible to scroll through the previous entries to find the error. This may require the user to re-enter the whole batch (which is not so good).

The benefit of selecting the Padmede is its ease of use. It should suit many first-time users, particularly if the selection of the accounting system is not the main use for the computer.

The Padmede accounting modules are not great in terms of providing an extensive amount of management information. They do, however, provide the basics. No module requires special mention as they are all at a common standard.

### RATING: Padmede

Documentation	Good
Ease of use	Good
Error handling	Good
Performance	
Management information	Fair
Flexible reporting	Fair
Operational performance	Fair





*Bytes  
and Bones*

# ENTER NOW!

## The AUSOM CHALLENGE

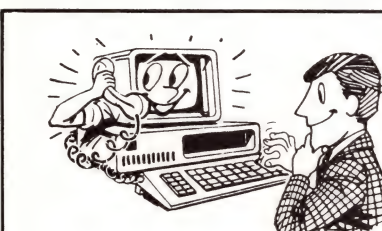
Conducted by the Apple User's Society of Melbourne (AUSOM) and Verbatim, the AUSOM CHALLENGE is an exciting competition where you can win \$100's in prizes — and a chance to have your software published overseas.

If you are a member of AUSOM or a recognized Apple users group, then just submit an Apple program in **EDUCATION** — **First Prize \$500**. In addition there are consolation prizes of Verbatim Clocks and every registered entrant will receive a Verbatim Datalife Twin Pack. **Entries close on June 2**.

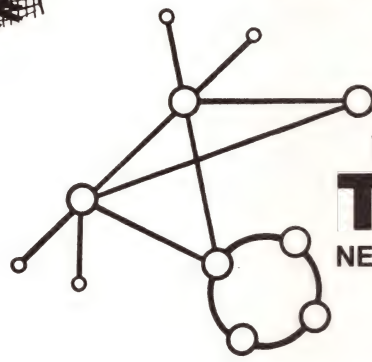
For more information write and enclose a self-addressed envelope to:  
**AUSOM CHALLENGE,**  
**PO Box 161, Altona Nth. 3025**

Sponsored by  
**Verbatim**  
 Australia Pty. Ltd.

*Taylor*



## Now your IBM-PC can talk while it's working!




With  
**TOPNET**  
 NETWORKING MODULES

**NOW YOU CAN COMMUNICATE WITHOUT INTERRUPTING NORMAL OPERATION**

The TOPNET Expansion Board has its own microprocessor and memory, so it can keep up a dialogue with a mainframe computer all day long without interfering with your long day's work. What's more, TOPNET speaks mainframe protocols — SNA and Bisync for example — so it fits into your existing communications

network without any expensive protocol converters. And its modular design allows you to configure TOPNET for your particular require-

ment, whether RJE or interactive terminal emulation, file transfer, your own special application, or all of the above.



**Ask your IBM-PC dealer for details**

Designed and manufactured in Australia by  
**TOPOLOGY NETWORKING PTY. LTD.**  
 700 Burke Road, Camberwell, Victoria 3124  
 Telephone: (03) 813-3377

TOP/AMC  
 Enter S038 on Enquiry Card



# ATTACHE

**Attache**  
275 Alfred Street,  
North Sydney 2060.  
(02) 929 8700.

WE found all modules to be very good, with the exception of the general ledger, which we thought was a little too complex for the average small company. It may be more appropriate to an accounting office.

The Attache package, in our opinion is well tailored for a go-ahead, small to medium sized business. It has many good features and provides a good deal of flexibility in types and style of reporting.

The use of deferred printing for audit trails was a unique and intelligent use of the computer — something that will take some of the frustration out of using a personal computer.

In summary, we found Attache version 2.0 to have a good accounts receivable package with provision for a good deal of management reporting. The accounts payable package was equal to the receivable package. In stock, however, Attache excelled, with some features to make some mainframe/minicomputer packages envious.

Only in the area of general ledger is it less than very good, and this has come about by trying to give too much power to the user. It should be said, however, that a top accountant would relish the general ledger, particularly in the use of budgets.

If there is one microcomputer software company that industry people love to hate, it is Attache. Managing director Gary Blom, who is now marketing Attache in the US, has a real entrepreneurial bent. The Attache case is all part of smart marketing.

It is the marketing/sales expertise that has seen Attache succeed not only here but in the US. Locally, IBM will be supplying Attache software. This is another coup for the company.

## The manual

The packaging of Attache software is the first striking aspect of this suite. It comes in two cardboard boxes which have been made to look like black attache cases.

They are filled with all the appropriate paraphernalia needed to start processing. As well as manuals, diskettes and so on, there is sufficient paper to print your first month's statements.

We understand that Attache has now gone Gucci; the rumor is that Gucci has designed the packaging of the latest release of the company's software. Hopefully, the new manuals will have a better print quality than the current lot.

Fortunately, the quality of material in the manuals is better than it looks. It provides the right amount of information for first-time users — the right level at which to pitch manuals. Each manual has a section for first-time users, including some non-system specific topics, such as "What is a computer?" a glossary, and so on.

Generally, the manuals are reasonably well indexed, are a convenient size and make good use of screen layouts to enhance the detailed text.

One manual contains two useful input control forms; a sample input form for master file maintenance and a system processing guide. One must ask the question: Why stop with these two forms? Why not other input forms too?

There was one noticeable omission from the manuals: a list of error messages. Maybe with Attache there are no errors.

## Accounts receivable

Possibly the two most outstanding features of the Attache accounts receivable system are the degree of flexibility it provides and the amount

of management information it generates.

The user can define the aging periods, the names of the four miscellaneous charges and the three levels of sales analysis. Further options include: the inclusion of cost of sales information; the usual sales tax options; the provision of a computer-generated bank deposit form; product group sales reporting; and the choice of showing the gross profit percentage as a percentage of sales or cost.

Many users will like the facility in the debtors enquiry program which allows them easily to locate the customer number. The trick is to enter the first character of the customer's name in the name key field, and the computer will display the appropriate list of customers and their account numbers onscreen.

The alpha search is possibly the next best thing to alphanumeric customer codes. We are aware, having seen a pre-release version, that the next version of Attache will provide alphanumeric customer codes.

The flexibility of the accounts receivable system can be seen in the number of alternative ways Attache allows the user to select the reporting format of the Debtors

```

DEBTORS - PRINT REPORTS          VER 1.0          DD/MM/YY

0. RETURN TO MAIN MENU
1. Transaction audit list
2. Customer master list
3. Transaction reports
4. Debtor highlight report
5. Sales report
6. Aged trial balance
7. Inactive customer report
8. Product group summary

. SELECT

DRIVE B = XX.X% FULL
DRIVE C = XX.X% FULL
DRIVE D = XX.X% FULL
    
```

## Debtors menu

```

CREDITORS - MAIN MENU          VER 1.0          DD/MM/YY

0. END CREDITORS
1. Change system date
2. Supplier maintenance
3. Supplier enquiry
4. Transaction entry
5. Automatic vouchers
6. Print reports
7. End of period processing
8. Pay selection
9. Change system options and parameters
10. Check integrity of data files
11. Change printer characteristics
12. General ledger

. SELECT

DRIVE B = XX.X% FULL
DRIVE C = XX.X% FULL
DRIVE D = XX.X% FULL
    
```

## Creditors menu



Highlight Report. It can be printed in customer number or alphabetic sequence on customer name. The user can select a range of accounts on customer number, sales code, credit limit exceeded, balance in credit and user-defined amounts (such as those greater than \$5000).

The Debtors Highlight Report provides the right amount of information to manage your customers' balances. Another useful management report, the Product Group Sales Report, provides a first indication of the profitability of the month's transactions.

Throughout the package, the user is allowed to defer the printing of audit trail reports. With master file maintenance, the user is even allowed to choose not to produce the audit report. Our days in audit make us cringe from this type of option but, nevertheless, we can see its practical side.

### Accounts payable

There is, inevitably, a fair amount of data entry to the accounts payable system, including: supplier's invoice details; various dates (invoice date, due date, discount

date), and amounts (invoice amount, discount amount, discount percentage). Attache has tried to make this task somewhat easier by providing a default date for the due date.

Unfortunately they chose the system date as the default date. The system date is an unlikely date; possibly some sort of calculation of, say, 30 days past the invoice date would be better.

The methods of reporting are very flexible. Management can produce reports on age outstanding, discount date, due date and so on. These same selection methods are also available in selecting suppliers for payment. After going through an automatic selection process, management can go through a manual unselection process until the proposed outlay is within reasonable cash limits.

Realising that not every business wants to have the computer produce cheques, Attache allows the user to choose either the cheque printing program or a cheque listing program. This function also updates the suppliers' balances on the master file.

### Stock

The special features of the stock system include: three selling prices with user-defined headings; optional re-order techniques (re-order in economic order quantities); three costing options (average, fixed or last cost); and allowing the user to set the number of decimal places in quantities and gross profit reporting. We particularly like the option of introducing a bin location, which is eight alphanumeric characters. This is particularly helpful at stocktake time.

Attache has recognised that some users may not buy the sales invoicing module (which interfaces stock and accounts receivable). The program that covers the entry of issues of stock permits the user to enter a customer number. Although this is only a comment field, it could be very helpful when it comes to locating and correcting errors.

The reports in the stock system are as flexible as those of the other two modules reviewed. The only additional features were the possibility of producing a stock report (which ignores items with nil stock), and the production of a price list.

And now for something completely different . . .

Prices can be adjusted across the board, one range of product numbers at a time, one product group at a time or by supplier code. This is useful and very, very clever. We have come across larger systems that do not have this type of feature. If this was not enough, the Attache package also allows management to change the price by either of two methods.

First, you can stipulate that the sale price will be the current average cost plus 50 per cent. This would cause an item which as an average cost of \$10 to be priced at \$15. Alternatively, the price change can be effected on the existing sales price. For example, an item costing \$15, which had previously been sold at \$20, could be changed to a sale price of \$30 by stipulating a rise of 50 per cent on sale price.

In the area of stocktaking Attache really has the others beaten. The system creates a stocktake data

#### STOCK - MAIN MENU

VER 1.0

DD/MM/YY

- 0. END STOCK
- 1. Change system date
- 2. Product maintenance
- 3. Product enquiry
- 4. Transaction entry
- 5. Print reports
- 6. End of period update
- 7. Selling price maintenance
- 8. Stocktake
- 9. Change user and stock options
- 10. Check integrity of data base
- 11. Change printer characteristics
- .. SELECT

DRIVE B = XX.X% FULL  
DRIVE C = XX.X% FULL  
DRIVE D = XX.X% FULL

### Stock menu



disk. It prints out stocktake forms in bin location or product number order and receives stocktake counts in the same order as the forms were produced. (It even does this well as the stock system automatically displays the next record in the selected sequence to save the operator keystrokes). Once all entries have been input, the system reports variances. Finally, when the checks and adjustments have all been made, it makes the appropriate adjustments to the stock master file. Wow!

## General ledger

Attache does not offer a totally integrated suite of programs. The only module that automatically integrates with the general ledger is accounts payable.

Although there are a number of advantages in total integration, there are also advantages in keeping certain modules separate. Many businesses will close their sales books as close as they can to end of the month so that they can send out their statements as early as possible.

But they will leave the closing of their accounts receivable as late as possible so that they can check that all suppliers' invoices have arrived and are correct. Some time after closing off the accounts payable system, they will begin final journal entries to prepare their profit and

loss statements. As you can see, there is benefit in allowing these systems to run separately.

The setup of the general ledger is reasonably complicated. Attache compensates for this by providing a good explanation in the manual, by supplying a standard chart of accounts and by printing a standard input form for master file input. The novice computer user is, however, guaranteed to find it difficult to set his or her own general ledger, and would be better off using the chart of accounts supplied.

The ability to structure reports is restricted by being governed by the account number. Reports must be produced in account number sequence.

One small feature that makes life a little easier is the paired account facility. Let us say that 1982 saw our company working on an overdraft, but 1983 was a great success, and we had cash in the bank at the end of the year. By signifying that overdraft and cash at bank are paired accounts, the system will automatically display the account in the appropriate field.

The general ledger is batch-operated and provides the greatest level of auditability and control of all the Attache systems. Perhaps this is because accountants use it. It is, in a practical sense, over-controlled, and

users are likely to ignore many of the control features.

It is hard to understand why Attache has not provided deferred audit trail printing in its general ledger. But this is not too bad, as the printing is done at the end of a batch of entries.

The system is set up to facilitate the entry of opening balances and budget information. Budget information entry has been particularly well thought out. One can enter budget details for a single period for a range of accounts or for multiple periods for a single account. When entering budget information for a year, the user can: enter the annual budget and have the computer split it over 12 months or enter a monthly amount and have the computer allocate the monthly amount each period; enter the first period balance and have the computer inflate that amount by a percentage or a fixed amount over the remaining months; enter the first and last balance for the year and have the computer fill in the intervening months; or enter individual monthly amounts.

Undoubtedly, the management information that this software can generate is a step beyond Attache's competitor software. As you will discover, when you read our analysis of O'Reilly's Microtiger/Famas on the next page, there is a close link between Attache and O'Reilly. In that review, we outline the origins of the Attache package; this will provide some insight into the Attache general ledger package.

### GENERAL LEDGER - MAIN MENU

VER 1.0

DD/MM/YY

0. END GENERAL LEDGER
1. Change system date
2. Account maintenance
3. **Transaction processing**
4. Print reports
5. End of period update
6. Creditors interface
7. Change system options and parameters
8. Check integrity of data files
9. Change printer characteristics
10. Management accounting

.. SELECT

DRIVE B = XX.X% FULL  
DRIVE C = XX.X% FULL  
DRIVE D = XX.X% FULL

### General ledger menu

## RATING: Attache

Documentation	Good
Ease of use	Good
Error handling	Fair
Performance	
Management information	Excellent
Flexible reporting	Good
Operational performance	Excellent



## FAMAS

O'Reilly  
6 Ryde Road,  
Hunters Hill 2110.  
(02) 896 2799

WE ARE not really sure whether there is a difference between O'Reilly's MicroTiger and Attache software. With the exception of the general ledger package, which is called FAMAS (Financial And Management Accounting System), we believe the two are identical.

The only system we looked at, therefore, was FAMAS. This we did with great gusto, as this package is sold into the accountancy marketplace, and we were interested to see what general ledger an accounting practice would use.

We found little added information over and above that contained in the Attache manual, and we believe some improvement could be made here, particularly as this package would form the backbone of accounting practices' management information system services.

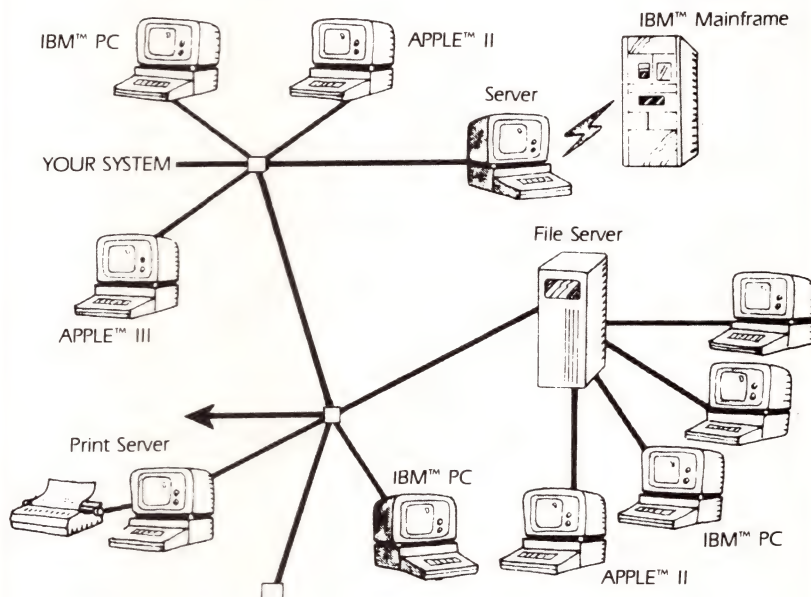
To our surprise, O'Reilly says its representatives set up its software for each installation. Consequently, there is no section on system setup in the manual. The manual also does not contain any general information for the first-time user. Nor does it contain information on error messages and how to handle them.

We found FAMAS to be different from Attache's general ledger in two areas. First, FAMAS can run multiple charts of accounts; Attache only one. Second, FAMAS provides for livestock accounting, something no small business should be without!

To improve the FAMAS package, we would recommend that O'Reilly should consider adding a special report generator. We are aware that FAMAS will interface with Multiplan, but this is not quite the same. In any case, the review version supplied to us did not refer to a link with Multiplan.

We prepared no report card on FAMAS, as we believe we said it all with Attache.

# Now Your IBM™ PC's Can Talk to Each Other



Make more use of your IBM™ PC/XT, Apples™.

Networking allows you to connect all your PC's together. This allows sharing of hard disc storage and printers (ensuring more efficient use), shared access to files and communication between stations with an electronic mail system.

Networking with Data Universe networks with their large capacity hard discs and advanced software gives you the independence of a micro with the capacity of a mini — **but at a fraction of the cost.**

Also obtainable from us up-to-date reports on Networking, written by Dr Ken Thurber, Architecture Technology.

Phone now for further information:

**DATA UNIVERSE**

2/190 George Street,  
Parramatta, N.S.W. 2150  
Tel. (02) 689 2599



# THE EXECUTIVE™

---

## Osborne Executive Productivity

---

In 1981, Osborne Computer Corporation created the concept of portable, low-cost personal business computing. The Osborne 1 was a revolutionary change in the way people go to work.

The same innovative approach to business computing has created The Executive by Osborne.

The Executive was designed, built and priced with one objective: to increase your productivity. It is a tool to help you move ahead quickly in your business or profession **now**.

The Executive is delivered with the hardware and software tools you need to go to work right away on the jobs you do for hours every day. With enhanced hardware and software, the Executive is designed to make the Osborne concept of personal business computing even more attractive.

It's the next logical step.

The evolution of the Osborne revolution.

---

## Your Osborne Executive is an investment in your business future

---

It's an investment in your own scarcest resource: thinking time. It lets you put the time you save on mundane chores into creative, "bottom line" tasks.

It's an investment in your personal growth, because The Executive gives you new tools to do new jobs, jobs you simply could not imagine doing before.

And it's an investment in your effectiveness, because the Executive handles all the details for accurate computations, error-free typing and organisation of dates, facts and lists.

---

## Do you work with words?

---

With WordStar™ The Executive becomes a simple and powerful portable word processor. It lets even two fingered typists get their ideas down faster than handwriting or dictation. Best of all, it is quick and painless to change your mind and improve what you've written, to change your strategy to meet market conditions.

At the same time, your secretary is freed to do more useful "assistant" work, while you achieve polished, finished text with total control and privacy.

Letters, memos, reports, articles, copy, ideas – will improve dramatically. They'll take less of your time and minimise interruptions. They'll go out faster. Your time becomes more effective, you become more efficient.

---

## Lots of memory to work with

---

The Executive has 128K of user memory, making it extremely quick, a useful attribute when you're working with number-oriented tasks or sorting through data files. Expanded memory also lets you add more rows and columns to your spreadsheets than ever before – extending the range and power of the SuperCalc™ program considerably. The two disk drives store 200K each, which means you can have about 60 typed pages of word and number information at your command on a single disk.

---

## Do you work with numbers?

---

The Executive and SuperCalc™ replace your calculator, paper and pencil with the accuracy and unflagging attention of a speedy, dedicated machine.

Remember the last schedule, forecast or budget you did by hand? Now imagine laying it out without having to add any numbers across or down. Think how fast you could work if changes made in one month's allocation were reflected instantly across the entire spreadsheet.

That's what the Executive can do with SuperCalc™. It works just as easily on a single column of figures, a complex budget forecast, trend analysis or research report.

Everything you do with numbers can be saved on a diskette for later review or revision. Or it can be run out on your office printer.

---

## Do you want to get organised?

---

The Executive includes Personal Pearl™, a powerful database manager. Using your Executive, you can now file, organise and find all sorts of information. Quickly. Easily. All you do is enter the quotes, name and address lists, market data, or whatever, by filling in simple forms on the screen: Forms you specify yourself.

The Executive will sort it all out and store it in a way that lets you find it the first time you look. Fingertip efficiency that is infallible.

It's a personal electronic filing system, address book and calendar pad all wrapped up in one. You can instantly get your hands on facts that used to be jumbled up in a file somewhere. And you need never again call a phone number that's been changed. Change it once and it's instantly changed everywhere in your own personal database.

---

## Say hello to the information age!

---

The most exciting development in personal business computing is the telephone. The Executive COMM-PAC™ option lets you plug your Executive right into the telephone.\* To let you access and control information electronically. Now you can enjoy instant access to an even wider world of information . . . latest stock listings, news reports, newspaper clipping files, commercial research services . . . the list grows daily.

And you can begin saving time and money with electronic mail. You can exchange files and information with other Osbornes – even other computers – over the telephone lines. Just imagine the advantage of sending a twenty page document anywhere in the world in a matter of minutes!

\*Subject to Telecom approval

---

## Newest and best operating systems

---

The systems that manage computer operations are continually being improved. The Executive includes two different operating systems: CP/M Plus, a new and easier-to-use version of CP/M; and the UCSD p-System, which has recently become an industry standard.



# BY OSBORNE™

**LIMITED  
OFFER!**



## \$3198

By far the best value computer.

**TAX INCLUDED**

What this means to users is that a vast library of applications tools designed to run with CP/M or p-System computers is available to you. CP/M and p-System software from Osborne and a number of other sources can help you accomplish almost any business task you can imagine.

### The bottom line

If quill pens were the state of the art and someone showed you a ballpoint, would you learn how to use one?  
If letter-writing was the way business was done and someone told you about the telephone, would you investigate it?  
If typists and filing cabinets and mounting postage bills are the bane of your bottom line and someone told you about an inexpensive investment that could set you free to do what you do best, would you check it out?

**YES**

**Software worth  
\$3500  
all included in price**

Assessed by Mr Milton McClynn-Worthington  
OSBORNE USER GROUP

### Do you know the BASICs...

Two powerful BASIC dialects – MBASIC™ and CBASIC™ come with the Executive. If you have studied a little programming, you'll know the power of these two languages. If you haven't, you may find them useful for business application software and a wide variety of learning programs that will introduce you or your children to the fundamental power of the computer.

### Terminal Emulation (optional)

Most large companies have vast stores of information full of facts that would be useful to the executive... if you could only reach them.

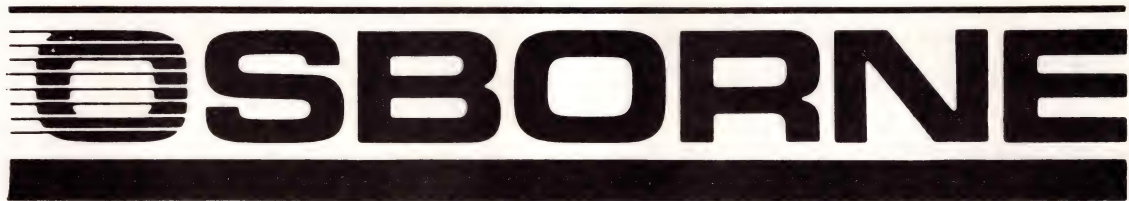
The Osborne Executive lets you plug right into your company's computer system. In many cases your Executive can function with your main computer just like one of its own terminals.

### Your Executive productivity investment goes where you go

Because the Executive is portable, you never need to work without it. And you'll quickly find you don't want to work without it.



# YES



is still Australia's Number 1.

**YES! OSBORNE is stronger than ever!**

**YES! OSBORNE U.S. is continuing with leading designs**

**YES! OSBORNE in Australia has never been in a better position**

**YES! OSBORNE Australia is still by far the most favoured personal portable computer**

**YES! Recent increase in sales have put competitors even further behind**

**YES! Now is the time to buy**

## The Executive by Osborne. One price includes:

### Standard Hardware:

- Z80A™ 4 MHz CPU with 128K RAM.
- Real time clock inbuilt.
- Dual floppy disk drives with 200K bytes storage each. Ability to read/write with IBM PC, DEC VT180, Xerox 821, Cromemco, and UCSD p-System Universal Disk Format.
- 7" amber display CRT with reverse video, underscoring, blinking, two user-definable character sets, half intensity.
- 24 lines of 80 characters each. 8x10 dot character cell matrix.
- Business keyboard with numeric keypad and cursor control keys.
- Video brightness and contrast controls on front panel.
- 2 RS232 ports for modem and printer plus parallel printer port.
- Baud rates from 50 to 19,200, software selectable.
- Fully addressable IEEE488 port using a Motorola 6821 PIA
- Z80A SIO serial communications controller for synchronous and asynchronous communications.
- Weather-resistant, portable housing.
- Dual voltage 240/120V 50/60Hz 55W max.

- Self test diagnostics on power-up.
- DMA (Direct Memory Access) port (internal).
- Safety Certifications: IEC 380, UL, FCC, VDE, CSA.

### Standard Software:

- CP/M Plus (3.0) and UCSD p-System Operating Systems.
  - WordStar™ word processing with MailMerge™.
  - SuperCalc™ electronic spreadsheet.
  - Personal Pearl™ database system.
  - CBASIC™ programming language.
  - MBASIC™ programming language.
  - Extensive range of operating system utilities.
- INCLUDES complete and simple instructions for all hardware and software.

**YES** Full national 90 day warranty from Hills Industries in your Capital city.

**YES** Spares, Service Contracts & full support also available.

**\*OSBORNE 1 — \$2,185 incl. tax.**

## AUTHORISED OSBORNE EXECUTIVE DEALERS

### NEW SOUTH WALES

**Complete Solutions — SURRY HILLS**

(02) 331-6799

**Computer Connection — MIRANDA**

(02) 526-1404

**Computers Galore — NEUTRAL BAY**

(02) 908-2355

**Delta Computer Systems — BANKSTOWN**

(02) 705-6636

**Direct Computer Sales — HURSTVILLE**

(02) 570-8344

**Foremost Office Equipment — PARRAMATTA**

(02) 635-5477

**Grace Bros Business Centre — SYDNEY**

GEORGE ST. (02) 238-9111

**Orana Cash Registers — DUBBO**

(069) 82-5833

**S.C.C. COMPUTING — SYDNEY**

93 YORK ST. (02) 290-3344

**Typewriter City Discounts — SYDNEY**

PITT ST. (02) 267-8847

**Computer Spectrum — WOLLONGONG**

(042) 27-1666

**Our Town Computers — NEWCASTLE**

(049) 52-5105

**Bathurst Computer Services — BATHURST**

(063) 31-2833

**AUSTRALIAN CAPITAL TERRITORY**

**Boulevard Business Services — CANBERRA**

(062) 48-5411

**R C Electronics — HOLT, A.C.T.**

(062) 54-7608

**NORTHERN TERRITORY**

**Davionics — ALICE SPRINGS**

(089) 52-3517

### QUEENSLAND

**Archive Computer Services — CLAYFIELD**

(07) 262-2911

**Cairns Computer Centre — CAIRNS**

(070) 51-8010

**Compsoft — SPRING HILL**

(07) 229-0066

**Computers & Peripherals — KEDRON**

(07) 350-2611

**Electronic Warehouse — FORTITUDE VALLEY**

(07) 52-8455

**Myer Computer Centre — INDOOROOPILLY**

(07) 378-5111

**Scarborough Fair Computer — SOUTHPORT**

(075) 32-5133

**Toowoomba Computer Centre — TOOWOOMBA**

(076) 32-7542

**Town & Country Computers — TOWNSVILLE**

(077) 75-4000

**The Byte Shop — NEWMARKET**

(07) 352-6621

**The Byte Shop — TARINGA**

(07) 371-0711

**WESTERN AUSTRALIA**

**Amity Computers — ALBANY**

(098) 411-6060

**Computer Country — PERTH**

(09) 328-4644

**Myer Computer Centre — PERTH**

(09) 321-0151

**Ossie Computers — CLAREMONT**

(09) 384-5787 W.A. DISTRIBUTOR

**SOUTH AUSTRALIA**

**Micro-80 Computing Centre — ADELAIDE**

(08) 211-7244

**Myer Computer Centre — ADELAIDE**

(08) 217-0123

**The Copy Centre — WHYALLA**

(086) 45-7755

**VICTORIA**

**Almer Distributors — OAKLEIGH**

(03) 569-0169 or 569-6911

**Data Parts — ALBURY**

(060) 21-8080

**Data Parts — SHEPARTON**

(058) 21-7155

**Data Parts — BENDIGO**

(054) 43-4866

**Data Parts — BALLARAT**

(053) 31-3399

**Direct Data — ARMIDALE**

(03) 20-6949

**Geelong Computer Centre — GEELONG**

(052) 22-2844

**IMA Computer Centre — SURREY HILLS**

(03) 560-2974

**Myer Computer Centre — MELBOURNE**

(03) 661-3342

**Nucleus Computers — MOUNT WAVERLEY**

(03) 232-6370

**Tech-Rentals — RINGWOOD**

(03) 879-2266 NATIONAL RENTALS

**TASMANIA**

**Coastal Computers — BURNIE**

(004) 31-7959

**Stawberry Enterprises — BERRIEDALE**

(002) 49-1814

- All sales and related inquiries must go to the dealers.
- All Engineering and machine faults must go to Hills Industries in your Capital City.

● **OSBORNE Australia Sales Centre (02) 290-3344**



# IAL

**Interactive Applications**  
**Box 1421,**  
**North Sydney 2060.**  
**(02) 920 1377**

WE found the IAL package to be superior; easy to install, flexible and a source for good management information development. IAL seems to have concentrated on providing management features rather than a more technically up-to-date system. In this area, we believe IAL could improve editing features, the speed of processing and could organise for deferred printing of audit trails.

This software, which hails from New Zealand, appears to be good enough to be able to compete with any accounting software in the world. All it needs is a bit of a brush-up in looks (specifically a better-quality manual) and some work on improving technical features.

## The manual

There are two manuals for the IAL system. Each section is indexed and begins with some basic information, including instructions on back-up procedures. We found a Software Performance Report in this section, which showed the confidence that IAL has in its product.

The manuals are foolscap sized which is, in our opinion, inconvenient to work with. Each section is separated by a colored slip of paper rather than cardboard. The manuals make reasonable use of screen layouts and report formats to highlight text but, all-in-all, IAL appears unconcerned with the presentation of its manuals. From a marketing standpoint alone, it would seem reasonable to have quality manuals. It is often the first thing prospective users see of the system, and first impressions are usually lasting ones.

## Accounts receivable

We were presented with a balance-brought-forward system to re-

view, and our understanding is that a new open-item system is now available. We were somewhat surprised that IAL did not send this to us for review.

The system uses a numeric account code which is supported by a two-digit alpha sort key. When entering sales invoices, the user can merely key in the alpha sort key and locate the correct customer by using the right and left arrow keys. This is as clever a function as we have seen with numeric customer codes, and offers great assistance to the operator who cannot remember numeric codes.

During this review, we have become used to being able to edit details before completing an entry. IAL does not provide this level of flexibility, but it is not unsatisfactory to have the user wait until he has completed an entry before changing details.

IAL provides the facility to extract management information from sales transactions. The user can specify three levels of sales analysis. For example, management could receive a report showing which goods are being sold by a particular salesman to a specified type of customer.

Businesses whose customers pay round amounts will like the facility which allows the computer to automatically age cash receipts against the oldest balance. While on cash receipts, we noted that the IAL system prepares the bank deposit slip while recording receipts. This is the sort of feature users expect of computers, and is a good example of the computer helping to remove unnecessary duplication.

Among reports the system provides is a debtors control report. This is intelligent audit trail, allowing the user to independently check off the closing balance of entries to

ensure that all transactions have been processed against the correct version of the master files.

This package allows reasonably flexible reporting. For example, with the aged trial balance, the user can produce separate reports by customer type while specifying whether or not the listing will contain only balances or both balances and transactions. There is also a facility to produce a report of overdue accounts or a list of customers with nil balances.

## Accounts payable

The accounts payable system provides a little more than the average with a two-tier level of supplier analysis, a comment and a remit to field, which allows payment to be directed to head office rather than to the supplying department, and an entry facility for unapproved invoices (this pleases most of the conservative accountants around town, as it helps in bringing the correct costs to account in the month in which they were incurred) and the added facility to go back into the invoice transaction and indicate that it has been approved for payment.

We were a little disappointed that users could not indicate that they had manually part-paid an invoice. For example, a supplier to whom you owe \$5000 rings up in desperate need of extra cash, so you pay him \$1000 on account. Generally, this would come straight out of your cash book, rather than having him wait until your next computer-produced cheque run (you would never have the computer prepare only one cheque). There is no easy way to indicate that this had

** DEBTORS FILE MAINTENANCE **			
A = ADDITIONS	C = CHANGES	D = DELETIONS	
E = EXIT		OPTION: E	
*****			
DEBTOR NUMBER: ....	PRICE INDICATOR:		
DEBTOR NAME: .....	SALES TAX CODE:		
ALPHA KEY: .....	SALES CERT. NO.		
ADDRESS LINE 1: .....	CUST TYPE CODE:..		
ADDRESS LINE 2: .....	DISCOUNT %:.....		
ADDRESS LINE 3: .....	CREDIT LIMIT:.....		
POST CODE: .....	STATEMENT A/C:....		
PHONE NUMBER: .....			
COMMENT: .....			
ACCEPT DETAILS Y/N Y			

## Editing debtor details



occurred. The user would have to manually re-enter most of the details and adjust the old entries by special journal.

The Payment Schedule is a useful report which helps users to manage their cash outflow. Selections can be done on a number of bases, including overdue payments by input date, by discount date and by all of the above. Thereafter, the user can go back into the selected payments and adjust individual selections and unselect some of the invoices to meet the available cash.

## Stock

The stock part numbers are 15 characters long. This is a long part number and allows considerable flexibility when setting up stock codes. To assist the user who cannot remember such long numbers, IAL has included a feature which allows the entry of the first digit of the stock code. The package sequentially lists all items, starting with that character until the correct line is located.

There are three levels of stock analysis — by supplier, by product group and by stock location. Reporting, therefore, proved to be flexible and the information reaching the manager would, consequently, be at a manageable level. If a manager receives a 50-page report, it takes considerable effort to sift through it to sort out relevant details. Using the flexible reporting structure of IAL, a user can prepare a small, relevant report with which a manager can quickly home in on interesting items.

When preparing reports, the stock system allows the user to input the name of the person to whom the

report will be sent. The stock reports also print out the parameters used in selecting items for the report.

Printing names on reports is a useful but gimmicky feature. Printing the selection criterion is a necessary and important feature. It shows that IAL understands the way good management works.

The list of possible reports in the stock system is too long to go into here. We cannot imagine that there have been any possible stones left unturned in coming up with a clever stock system.

## General ledger

In many respects (and surprisingly so, considering the credentials of some of the general ledgers we reviewed), we found the IAL system provided the most flexibility in straight-out general ledger processing. It will: run 31 companies, 99 branches and (memory allowing) 9999 accounts; provide budgets and previous year comparisons; designate alternate type accounts for swapping between, say, overdraft and, in funds, automatically zero accounts at year end; provide extensive sub-totalling within the trial balance.

The system has a general ledger file integrity check feature which, in lay terms, verifies the trial balance against a control account and verifies that the logic of the setup of the chart of accounts summary calculations do not inadvertently enter the program into a loop.

The entry programs are well thought out. They allow the entry of a batch of imbalanced journals, but do not allow the posting of these batches until they balance. To assist those accountants who do their own

data entry, the IAL general ledger provides a running total of entries, which will obviously be nil when the accounts are in balance. This can be helpful in that, if one entry has been missed, it can be identified quickly before completing data entry.

There is no feature to allow the user to delete a whole batch if, for example, a batch was accidentally posted twice. The user has to delete transactions one by one. This type of problem can be circumvented if entries are done in small batches.

The only module that interfaces with the general ledger is accounts payable. But we do not see this as a limitation — rather it is often impractical to have every module linked.

The outstanding feature of the general ledger is the report generator. The generator can access up to 18 of the 33 fields at any one time, and the user can see the report on screen as it is being developed. There is even a test print feature to assist the developer. Default headings can be overwritten and formats can be stored for later recall.

There are nine accumulation fields, so reasonably complex reports can readily be produced. This section of the manual was well written and, considering we had not seen it used before, we were delighted with the speed at which we got it working.

There was one omission from the general ledger; one for which, in our view, the report generator more than compensates. The IAL general ledger does not provide standard profit and loss and balance sheet formats. Some people may find this to be a negative factor.

## RATING: IAL

Documentation	Good
Ease of use	Good
Error handling	Excellent
Performance	
Management information	Excellent
Flexible reporting	Excellent
Operational performance	Fair

```

** ACCOUNT FILE MAINTENANCE **
A = ADD          E = EXIT          O = ENQUIRE
C = CHANGE       S = SPLIT POSTING
D = DELETE       V = VERIFY LEDGER
OPTION: A

=====
BRANCH A/C COMPANY NAME
QUANTITIES ----- QTY--BUDGET--AMT QTY--LAST YEAR--AMT
BUDGETS ----- O/B
DR/CR -----
ALTERNATE A/C -----
ADD TO A/C -----
END OF YEAR -----
POSTING -----
REPORT NO LINE NO
-----
-----
TRIAL BAL SUB TOT:
FIXED ASSET FLAG:
MAINTAIN LAST YEAR'S BALANCES Y/N Y
  
```

Editing general ledger account

```

** INVENTORY FILE MAINTENANCE **
A = ADDITIONS    C = CHANGES      D = DELETIONS
E = EXIT
OPTION: A

=====
PART NUMBER: ----- DESC: -----
SUPPLIER: -----
GROUP: ----- AVG.UNIT COST: -----
LOCATION: ----- STD.UNIT COST: -----
UNIT: ----- PRICE 1: -----
RE-ORDER POINT: ----- PRICE 2: -----
MAX.STOCK LEVEL: ----- SALES TAX %: -----
NOW-DIMINISHING: ----- CLASS CODE: -----
ACCEPT DETAIL Y/N Y
  
```

Editing stock details



# PEACHTREE

**JBA Micro**  
4th Floor, 8 Help St,  
Chatswood 2067.  
(02) 411 1144

ANY prospective user will obtain a great deal of confidence from the quality of the Peachtree manuals. Each module has its own manual and each manual has been prepared in the style of IBM manuals.

The section of the manual on set-up is excellent. The procedures are written so that even a novice could follow them. Set-up was one of the bugbears we faced with these reviews; we wished they all were as well documented as Peachtree.

One item many first-time users will like is Peachtree's suggested input forms. The manager responsible for getting a Peachtree package up and running is, at least, saved this responsibility. The benefit to this manager is that all necessary data is laid out in a form that follows data input. This ensures that all relevant data is captured and recorded in a fashion that facilitates data capture.

The only possible improvement could be that Peachtree could also provide an input control form to assist the user in checking that all documents have been entered and entered correctly. (It's very hard to forget lessons learned in our days in EDP audit).

The text itself is well written and unambiguous. Peachtree makes good use of screen layouts and sample reports to highlight the text.

## Accounts receivable

Each module of the Peachtree system has a system setup feature called Maintain System File. This enables tailoring of the system to meet some of the more specific needs of the user.

The Peachtree system does not provide for generating applications, but does allow users to define: the use of passwords; which records may be changed or deleted; whether there is to be consolidation of

accounts receivable transactions; and whether there will be a link to the general ledger file.

The Maintain System File function also requires the user to specify some relevant details regarding the applications. These include: the name and address of the company (for printing on statements, and so on); whether the hardware being used is floppy-based or hard disk-based; and the required file sizes.

Having the facility to define the size of the files is, none-the-less, a boon to the user, as it provides for growth and changes in hardware. Most of the other software reviewed did not allow the user to specify the size of the file.

Instead, these systems provide for a maximum file size and, if the user changes to a hard disk, he will have to contact the supplier who will then change over software.

One interesting aspect of the Peachtree system is the requirement to establish a general ledger default file with each of the accounts receivable and payable modules.

This feature facilitates the summarisation of entries to the general ledger. It is a handy feature, as it works even when the general ledger is not integrated with accounts receivable.

The default file feature provides for extra summarisation of accounts receivable transactions. There are 12 activity codes including sales, sales returns, sales tax, freight and so on. The user can also assign product codes to sales transactions and, therefore, increase the number of dissections. This allows further summarisation of sales entries in the general ledger by, effectively, another three categories.

In the US, the business community makes good use of discounting debts to speed up payment. In Australia, our experience has been that only the large companies are sophisticated enough to effectively use discounting and this is done only sparingly with trusted clients.

For smaller businesses, this facility is often abused, the debtor taking the discount regardless of whether the payment has been made by the due date. (Congratulations to those small companies who use discounting).

Peachtree, however, does provide some features that help businesses offering payment discounts; the system offers an automatic due-date

```
EC 1.00                ENTER CREDITS

CREDIT INVOICE OR OPEN CREDIT (C/O):[C] (ESC TO END)

SUPPLIER ID :           ('ESC' TO END, 'RETURN' FOR NEXT SUPPLIER)
INVOICE NO  :           DATE:
ENTRY DATE  :                                     ***DISBURSEMENT***
DUE DATE    :           AMOUNT:                   ..ACCOUNT....AMOUNT...
DISCOUNT DATE:         AMOUNT:                   1.
* CREDIT ALREADY APPLIED =                          2.
**ACCOUNTING DATA FOR THIS INVOICE                   3.
HAS BEEN PASSED TO G/L                                4.
ENTER AS OPEN CREDIT - PRESS 'ENTER'                   5.
CORRECT INVOICE (Y/N): Y                                6.
CREDIT AMOUNT:                                           7.
ACCEPT (Y/N) Y                                           ***DISBURSEMENT***
*)END OF - ENTER CREDITS                                [      ] [      ]

DISBURSEMENT IS OUT OF BALANCE!
YOU MUST RE-ENTER - PRESS 'ENTER'
```

Credit invoice entry display



and an automatic discount date from details held on customers' record.

One feature that will please the auditor but frustrate the operator is the printing of the audit trail at the end of each transaction. It is times like these that you wish for either a printer buffer or a faster printer.

Peachtree uses some US terminology and this is apparent in its accounts receivable system. The system refers to "payments" when we have found it common to refer to "receipts". This is, frankly, not a real problem and just places some perspective on the origins of the package.

One problem we did discover, however, occurred when we inadvertently keyed in a receipt (payment) greater than the balance owing. The system just loops until all the receipt is allocated; something that cannot happen if there is not enough debt. Eventually we had to

boot out of the system and restore from backup.

One thing that will please many small businesses is the system's ability to automatically allocate receipts against invoices. Often, customers who fall behind with bills pay in round amounts.

## Accounts payable

Although many of the reviewed software packages provided for standing journal entries, only Peachtree allowed a user to specify both a discount date and a due date for standing journal entries. We thought this to be a novel item — one, however, that may not be used too often.

The accounts payable system seems to assume that a manager-owner will get his or her hands on to the computer to see what invoices need to be paid. This is a real strength as such an assumption allows Peachtree to use the computer effectively and cut down the amount of paper in the office.

The accounts payable user is allowed to scan all the suppliers one by one to see what is outstanding and for how long, or tell the computer to automatically scan all the suppliers' balances and select invoices for payment based on predetermined parameters.

With automatic selection of invoices for payment, a user can

specify a beginning and an ending discount date. The Peachtree system then produces a running total of the cash required to meet these discounted payments. The user can scan through these invoices and can unselect some of these items to meet the cash he or she has in hand.

One unusual aspect to this facility was that we could not part-pay an invoice selected through the auto select mode — even though we could partially pay an invoice when we had selected the invoice manually. One could, however, get around this apparent problem by unselecting the item then selecting it manually.

The two cash payments management reports are the Print Open Invoices and the Print Cash Requirements reports. The first is a listing in supplier order, the second a listing on due date order. Peachtree does not allow the user to delimit these reports to a special range.

To process payments against suppliers, users must print either cheques or remittance advices. Perhaps they do not have to be actual remittance advices of cheques, but none-the-less the system must think that they are real.

As many smaller businesses may only be running the accounts payable system to keep track of what they owe rather than as a system that produces cheques, this is somewhat restricting and a special program which produces its own audit trail report may actually be a better option.

## Stock

As well as the eight-digit account code, the Peachtree Inventory System allows users to specify a three-digit department code (both codes can be alphanumeric as usual). In the Australian context, one could read "State" for "department" and consequently keep trace of stock by State.

The stock system does not provide one report which gives a listing by stock item showing the total quantity on hand in each State/department. But most of the other systems did not provide even this level of analysis.

```

MENU 1.00      PRAS STOCK CONTROL      (c)1982, 1983
DD/MM/YY      by Peachtree Software (tm)

:1:

Q1 :1: EXAMINE STOCK STATUS      DS :3: DEPARTMENTAL SUMMARY REPORT
ET :1: ENTER TRANSACTIONS      DT :3: PRINT DETAIL STOCK REPORT
MF :1: MAINTAIN STOCK FILE      PD :3: PRINT PERIOD TO DATE REPORT
                                YD :3: PRINT YEAR TO DATE REPORT

PH :2: PRINT PHYSICAL STOCK REPORT  EP :4: PROCESS END OF PERIOD
OR :2: PRINT REORDER REPORT        SI :4: MAINTAIN SYSTEM FILE
ST :2: PRINT STOCK STATUS REPORT    FX :4: FILE INTEGRITY CHECK
IP :2: PRINT STOCK PRICE LIST

CURRENT FILE      ENTER SELECTION :      'ESC' KEY TO END
GENERATION: 000      STOCK CONTROL

Copyright 1982,1983 by Peachtree Software Inc. an MSA Company
    
```

Stock control menu

```

Q1 M1.00      EXAMINE STOCK STATUS

DEPARTMENT:
ITEM.....:

PRODUCT CODE.....:
DESCRIPTION.....:
UNITS.....:
SALES TAX CODE...:
VENDOR ID.....:
VENDOR ITEM.....:
CURRENT AVG. COST:
LAST COST/ITEM...:
PRICE A.....:
PRICE B.....:
PRICE C.....:
REORDER LEVEL...:
REORDER QUANTITY.:

BALANCE ON HAND....:
LAST ON
REORDER REPORT.:
YTLP $ SALES.....:
PTD $ SALES.....:
YTLP COST OF SALES.:
PTD COST OF SALES.:
YTLP # SOLD.....:
BEGINNING BALANCE..:
PTD # SOLD.....:
PTD # RECEIVED.....:
PTD # RETURNS.....:
PTD # ADJUSTMENTS..:

PRESS 'RETURN' TO DISPLAY NEXT ITEM [ ]      (P=PRINT A COPY)

*)END OF EXAMINE STOCK STATUS
    
```

Stock item screen display



While on the topic of analysis, the Peachtree Inventory System provides a further level of analysis when the user is also having the computer produce sales invoices (using the sales invoicing module). It provides a one-character product code which sits on the master record and this is brought into effect when summarising entries to the general ledger. As we did not review any sales invoicing systems, we cannot comment further on this feature.

Another feature that may please a number of users is the ability to enter a supplier's stock number against each stock master record. This is useful in keeping track of the supplier's stock number when re-ordering.

Being able to maintain two stock numbers is helpful as, in many cases, a business selects a stock number which suits it rather than one that suits its supplier. As stock systems, computerised or not, generally rely on users correctly labelling stock documents (invoices, releases, receipts, write offs, transfers) the ability to choose your own code — one which is most likely to be remembered — is quite important. This is a small, but clever, feature of Peachtree.

Another extra with the Peachtree system is the provision of a re-order quantity as well as a re-order level. The re-order level is frequently provided by the other stock systems that we have seen, but the re-order quantity is not.

Peachtree goes to some lengths in its manual to explain the concepts of Last In First Out and First In First Out stock valuation. (It is not intended that we do so here).

Having seen this discussed in the manual, one could think that here we have a stock system that will either produce one or the other, or better still, both! Alas, this is not so. The user can use only an average value or a standard cost to value stock, just as with most of the other stock systems.

## General ledger

The set-up of general ledger allows a user to specify the number of periods in the year (there could be

12 calendar months or 13 four-weekly periods). The user can format the balance sheet as the (older fashioned) "T" account or the more common standard format and can specify: the use of either budget amounts or last year actual amounts for comparative figures; the inclusion of schedules to balance sheet items (our clients like this facility as it can be used to keep details of family and intercompany loans off the balance sheet, supplying them only to family eyes as a separate schedule); and the number of departments (up to 100!).

In setup, the user must specify the range of numbers that will be used for each type of general ledger account (asset, liability and so on). This is a little inhibiting as it cuts down the flexibility that one has when reporting. For example, one could not report current assets, then current liabilities, then long-term liabilities, then fixed assets. All assets must be together as must all liabilities, and so on.

Peachtree allows more than the average amount of formatting when it comes to printing reports. One can report items on new pages, centre or left justify titles and print in different columns.

As mentioned before, one can also identify certain accounts as master records, where only the total of the group of accounts is shown on the balance sheet. Subsidiary accounts are then printed as separate supporting schedules.

Although it can be easily bypassed, the Peachtree system offers two levels of data entry control. They both appear to be hangovers from card input days but they are just the type of control that we can see the old-fashioned auditor asking for.

Before actually passing entries to the Peachtree general ledger system, one needs to enter a hash total of the value of the sum of the account codes affected and the number of entries that will be made.

Picture what this means; the accountant needs to add the six-digit account codes together before passing the entries to the data input clerk to enter, then check that this is the same figure that has been entered. What a task!

To show its understanding of general ledger, Peachtree assists the user by repeating the reference code and the description fields on ensuing entries.

As a final giveaway, Peachtree has provided two schedules in the general ledger system which are useful. They provide a depreciation schedule and an amortisation schedule.

The general ledger system uses pluses (+) and minuses (-) instead of debits and credits. This is common to all of the general ledger systems reviewed, but who would have thought the company which produced the MSA general ledger could not do better.

The lack of debits and credits will upset the average accountant, even though it could be argued that it simplifies the accounting process. It really should be changed.

For those users who have color graphics visual display monitors, Peachtree allows the user to select color display. It is possible to choose different colors for different applications.

For those of us who do not like numeric account codes, the Peachtree system is a boon as it allows alphanumerics as identifying codes.

The month-end procedures force a user to take a full back-up of the month's transactions. Allow several hours for month-end procedures as the process is reasonably slow. None-the-less, this is the sort of housekeeping that gives Peachtree the level of stability which protects the user from the vagaries of operator and hardware error; the former being the main reason that users have problems with computer systems.

## RATING: Peachtree

Documentation	Excellent
Ease of use	Good
Error handling	Good
Performance	
Management information	Good
Flexible reporting	Fair
Operational performance	Fair



# How you can

## ...and save \$20 on any Microsoft

This is no ordinary kind of mouse.

It's a Microsoft Mouse and you can catch one at any authorised Microsoft retail outlet.

Use the coupon below to send for your \$20 Discount Certificate, together with a list of outlets to help you find the one nearest you.

Take your Discount Certificate with you when you visit your Microsoft retailer and use it to obtain \$20 off any Microsoft software package valued at \$100 or more.

When you see exactly what a Microsoft Mouse can do, you'll undoubtedly want one for yourself.

The \$20 Discount Certificate is simply an extra benefit to make catching your Mouse an even better deal for you.

Microsoft Mouse lets you choose your options on your IBM Personal Computer without having to use the keyboard.

It makes everything so easy for you.

Just hold onto your Mouse and move it about on the desk top and a tiny pointer (called a cursor)

duplicates the movements on your video screen.

Your Mouse sits on your desk top; your lightest touch is all that's required to move it about.

It's so easy...far less fatiguing and cumbersome than using a light pen.

You needn't take your eyes off the screen — which is something you can't afford to do when you have to use the keyboard to call up the option of your choice.

Nowadays, the Microsoft Mouse makes using your IBM Personal Computer as easy as saying 'cheese'.

### MICROSOFT MOUSE SETS THE STANDARD

Microsoft Mouse is unique because it can be used with software programmes from many different software manufacturers.

For instance not only can it be used with Microsoft Multiplan, or Microsoft Word, but also with Lotus<sup>™</sup> 1-2-3, Visicalc<sup>®</sup> and Wordstar<sup>™</sup>.

Microsoft Mouse is the only Mouse in Australia that will drive other manufacturers' programmes.

Enter S018 on Enquiry Card

As with all Microsoft products, it sets the standard for the industry.

Microsoft is highly regarded internationally for the extremely high quality of its software packages.

In fact, it is Microsoft's MS-DOS\* that tells your IBM Personal Computer how to think.



Each Microsoft software package has been created as the most efficient software product in its class. But that's not all.

Microsoft provides you with a comprehensive back-up service that is invaluable.

For instance, if you have any problems with your programme...if there's something you don't fully understand...simply phone the Microsoft Hotline and obtain immediate, expert help. There's absolutely no charge for this service.

### FULL UNCONDITIONAL WARRANTY

All Microsoft hardware products carry a full twelve months warranty.

\*Marketed by IBM as PC-DOS



# catch a mouse

## software package worth \$100 or more!

Microsoft Diskettes carry a full 90-day warranty. Should a diskette develop a fault, Microsoft's repair division will fix it for you within 48 hours of receipt in Sydney. There's more.

Because of the rapid development of computer technology, often existing programmes are further developed and improved upon.

When this happens with any Microsoft package, your programme will be updated for you at minimal cost. You won't have to go out and buy a completely new programme. Microsoft will also keep you posted on new product development so you always know exactly what's available.

In other words, Microsoft's involvement doesn't end with a sale.

No other software manufacturer in Australia can provide these ongoing services and benefits.

That's why Microsoft is the world's largest personal computer software company.<sup>§</sup>

Microsoft Mouse helps you to speed up editing and choose commands in an instant.

In fact, it makes your computer easier to use.

Once you've seen Microsoft Mouse in operation you'll want one for yourself.

So ask for a demonstration at any authorised Microsoft retail outlet today and get \$20 off any Microsoft software package worth \$100 or more.

**USE THE COUPON TO SEND FOR YOUR \$20 DISCOUNT CERTIFICATE AND TAKE IT WITH YOU WHEN YOU VISIT YOUR NEAREST MICROSOFT DEALER.**

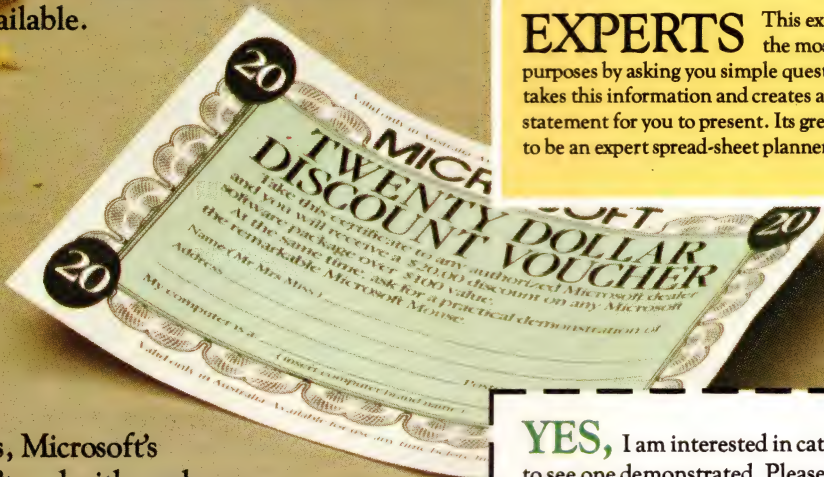
<sup>§</sup> Time Magazine, January 30, 1984.

### HERE ARE SOME OF THE LEADING MICROSOFT PACKAGES.

**WORD** Microsoft Word gives your microcomputer all the appeal of a big system without the price tag. Yet it's the friendliest, easiest writing system in its class. It's inexpensive enough for anyone to buy. And it's easy enough for anyone to use. Word's special undo feature gives you confidence and encourages you to experiment. Everything is shown on screen just as it will appear on paper.

**MULTIPLAN** Microsoft Multiplan provides you with a powerful financial workshop that's the easiest to use. It replaces midnight oil, makes redundant old fashioned ledger paper, pencil and eraser. Using plain English instructions you gain fast access to information you need for decision making. Thus allowing you to explore all possibilities and options with your financial planning.

**EXPERTS** This extension to Multiplan helps you design the most effective spread-sheet for your purposes by asking you simple questions in plain English. Experts then takes this information and creates a professional budget or financial statement for you to present. Its great advantage is that you don't have to be an expert spread-sheet planner!



**YES,** I am interested in catching a Mouse and would like to see one demonstrated. Please send me a list of authorised Microsoft Retail outlets, together with my Discount Certificate which entitles me to \$20 off any Microsoft software package worth \$100 or more.

Mail to:  
Microsoft Pty. Ltd.,  
Freepost 2,  
TERREY HILLS, N.S.W. 2084.

Name \_\_\_\_\_

Address \_\_\_\_\_

Postcode \_\_\_\_\_

**MICROSOFT®**  
The High Performance Software

WUNDERMAN/MIC003 A



FBS

**Future Business Systems**  
**Suite 6, 105 Hawthorn Rd,**  
**Caulfield North 3161.**  
**(03) 523 9211**

WE enjoyed reviewing the FBS software because we found some new and innovative features. Overall, we found the system easy to use and well documented. Unfortunately, we had a number of problems with the general ledger module which made us feel that this package was still being developed. The end product, once the bugs are ironed out, will be the equal of most of the general ledgers that we saw. FBS includes a report generator which provides a level of flexibility that most G/Ls cannot emulate and they can do this without making the general ledger too complex to be used by the average accountant.

We would rate stock as its best package, but let us not forget that it supplies a bundled cost for sales/invoicing and the accounts receivable system. The report card is badly affected by the problems we experienced with the general ledger so we have split them.

## The manual

The manual presented to us was hot off the press. It was bound in black plastic; attractive and a good size. One of FBS's features was the way the manual used the same references as the software. The system menu, therefore, was also the index to the documentation.

We found the error message section of the manual to be particularly good. The messages were not cryptic, nor were the suggested actions.

The setup instructions are straightforward and the user is given the opportunity to specify six different printers. There is a need to specify file sizes but the user is relieved of some of the tedium by having the system calculate the storage for them. The user simply enters transaction counts and the system converts this to bits and bytes.

We believe that FBS could put some extra effort into the sections in the manual on general ledger and the report generator. It is unfortunate that the manual lets the system down here, as these two areas look interesting.

## Accounts receivable

We thought we had seen everything when it came to setting up customer master files, but FBS has proved us wrong. If, when entering the six-digit alphanumeric customer number, the user types a + (plus) sign as the last character, the FBS software recognises this as a non-permanent customer name and address; one that can be overwritten when entering sales invoices.

Other special features in the master file include an agent number for paying commission and a charge account/head office number for group billing and six price categories! The FBS system maintains extensive sales history information, a feature which will help managers to track customer buying patterns.

The system has a search function to help users locate account numbers. This type of feature is usually only available with systems which use numeric customer codes, but there is no reason that this should be so.

One frustrating feature of the masterfile maintenance programs throughout the FBS systems is that they return to the main menu after each transaction. Building a master-

file for the first time must be frustrating.

FBS does not separate sales invoicing from accounts receivable, so intending buyers will find this a cost saving. We did not have a good look at the sales invoicing module, and without any others for comparison it is a bit hard to judge. After a preliminary examination of it, we came to the conclusion that it was reasonably workman-like.

FBS appears to be trying to introduce some novel features into its programs. We have already mentioned the plus sign at the end of the account number. Now we find that, when entering sales invoice details, the main body of the invoice remains (the product number, quantity and price), but the user is allowed to change the name and address details. One could use this feature if the same lines are sold to numerous customers.

The accounts receivable system provides a report which can be used as a bank deposit slip. This is useful, as not only does it help by saving manual work, but it also helps in keeping the accounts receivable system up to date. It does this as the cash cannot be banked without a deposit slip and the receipt cannot be entered if the relevant sales invoice has not been entered.

There is not a great deal of flexibility in choosing management information, but there is a reasonable amount of management information provided as standard

```

STANDARD FBS MASTER DISKETTE CONFIGURATOR
YOUR FBS SERIAL NUMBER IS *****
YOU MUST RUN THIS PROGRAM TO START YOUR FBS SYSTEM

1) NO. OF DISKS 4          CAPACITY PER DISK (Kbytes) 320
2) DEBTORS: 200            TRANSACTIONS: 200          PROGRAMS DISK: 1 DATA DISK: 1
   NO. OF INVOICES PER MONTH: 175                    BATCHED INVOICES: 30
3) STOCK ITEMS: 700        STOCK RECEIPTS: 700        PROGRAMS DISK: 4 DATA DISK: 2
4) CREDITORS: 200          TRANSACTIONS: 200          PROGRAMS DISK: 3 DATA DISK: 3
   G/L ACCOUNTS: 400        TRANSACTIONS: 400        PROGRAMS DISK: 3 DATA DISK: 2

ENTER A NO. TO EDIT, <CR> TO CONTINUE

STORAGE AREA ON DISK DRIVE
1 2 3 4 5 6 7 8 9 0
CR A: ..... 97.64
CR B: ..... 95.04
CR C: ..... 95.34
CR D: ..... 46.73
  
```

System start display

```

FUTURE BUSINESS SYSTEMS
presents
04/10/84 VERSION: FBS 16.6
LICENSED TO: KKKKKKKKKKKK

MAIN MENU

1) DEBTORS & INVOICING SYSTEM  5) STOCK BACK-ORDER SYSTEM
2) STOCK CONTROL SYSTEM       6) PAYROLL SYSTEM
3) CREDITOR SYSTEM            7) PRODUCTION MANAGEMENT SYSTEM
4) GENERAL LEDGER SYSTEM      8) SYSTEM UTILITIES
                               9) SHUT DOWN SYSTEM

ENTER FUNCTION NO. (<CR>=MAIN MENU)
  
```

Main system menu

```

31) CREDITOR NAME-KEY: MYERS      CURRENT CREDITOR DETAILS

1) CREDITOR NAME      S G Myer & Son Pty Ltd
2) ADDRESS LINE 1     234 Keys Road
3) ADDRESS LINE 2     MOORABBIN VIC 3129
4) TELEPHONE NO.      345 2314
5) CONTACT NAME       Fred Johnson
6) G/L ACCOUNT NO.    123
7) DAYS BEFORE PAYMENT 7
8) PAYMENT DISCOUNT  2.50
9) CLASSIFICATION     F
10) LAST PAYMENT DATE 10/12/82
11) LAST PAYMENT AMOUNT 34.00

12) CURRENT PAYABLE    123.20
13) 30 DAYS PAYABLE    12.45
14) 60 DAYS PAYABLE    9.00
15) 90 DAYS PAYABLE    0.00
16) B/F BALANCE        135.65
17) PURCHASES M.T.D.   123.00
18) PURCHASES Y.T.D.   1324.00
19) PURCHASES LAST YEAR 609.00

ENTER NO. TO EDIT, <CR> TO CONTINUE
  
```

System configuration menu



reports. One of these reports is the Profit Report which does what it says — reports on profit.

## Accounts payable

There is not a great deal to report when it comes to accounts payable. It is similar to a number of others we reviewed. There are, however, some brief points we can make.

The accounts payable system only allows input of a three digit general ledger account number, which seems a little restrictive. We also encountered an error which threw us back to the operating system; it was due to an input error on our part, but once you find one you begin to lose confidence in the software. Payment information and discount-taken details are entered separately. It is usual to perform these two tasks together.

## Stock

FBS has provided some nice new features in its stock system. Enter either a hash sign (#) or an asterisk (\*) as the last character of the 10-digit stock code and this stock item is flagged as a descriptive header in

reports. The hash symbol causes the system to advance one page in reports. Enter a "1" as the last digit of the stock code and the item is identified as a service item — a non-stock product such as labor. These are clever little features which do not complicate the system, but offer extra power.

We are aware that FBS has a vertical market package available for the rag trade. We can see some elements of this entering into their generalised package. For example, there are three levels of quantity invoicing (a price for one, for 10, for 50). This feature may have arisen from the rag trade, but it is easily used by other businesses. Remember this is in addition to the six price fields.

Automatic pricing adjustment is a special feature of the stock system. Not only can prices be adjusted by amount or by percentages, but the system can round to a user-specified level. The system then reports old and new prices, a feature that brings the necessary human touch back into the system. We liked it.

One trap arises with the above facility. We understand that costs can be adjusted using this facility. This could distort financial statements and is, therefore, somewhat dangerous.

## General ledger

The general ledger provides a model chart of accounts which can be manipulated to meet a user's requirements. FBS also provides a report generator as part of the general ledger system. The report generator provides the flexibility necessary to produce specialised reports which ignore the usual account code structure.

We were somewhat disappointed with some elements of this module. They were not up to the standard of the other areas. First, the budget variance report had a few bugs in it, so that the headings and field placements did not line up. Second, we found that the manual differed from the system in the case of the budgets and history report. Third, the manual did not provide sufficient guidance nor examples to help us to learn how to use it.

Once these problems are sorted out, we believe the FBS general ledger system will be very good. You can see this in the provision of the sort of features that they are building into the system, for example the online help screens. We would recommend waiting a while before buying the general ledger module of the FBS system.

STOCK NAME-KEY: REV400		CURRENT STOCK ITEM	
1) NAME OF STOCK ITEM	REV ENERGY MIX 600 ML	14) NO. IN STOCK	1000.00
2) SALES CODE	600ML	15) RE-ORDER LEVEL	200.00
3) SINGLES PER PACK	0	16) NO. ON RE-ORDER	20.00
4) PACKS PER CARTON	0	17) NO. ON BACK ORDER	600.00
5) SALES TAX	0.00		
6) AVE COST PRICE	.32	18) QTY SOLD M.T.D.	980.00
7) NEW COST PRICE	.35	19) QTY SOLD Y.T.D.	1875.00
8) PRICE 1	.65	20) COST OF SALES M.T.D.	320.00
9) PRICE 2	.68	21) COST OF SALES Y.T.D.	640.00
10) PRICE 3	.79	22) SALE VALUE M.T.D.	795.00
11) PRICE 4	.89	23) SALE VALUE Y.T.D.	1576.00
12) PRICE 5	.85	24) S/T CHARGED M.T.D.	0.00
13) PRICE 6	.75	25) S/T CHARGED Y.T.D.	0.00

ENTER NO. TO EDIT, <CR> TO CONTINUE

ACCOUNTING FEES		NAME-KEY: FERACC ACC. NO. 1 234 PAGE: 1	
DATE	REFERENCE NO.	DESCRIPTION	AMOUNT
11/01/83	G/L PAYMT 33242 1	ACCOUNTING FEES SEP/OCT 1982	135.45
14/01/83	G/L JOURN 7835 1	ACCOUNTING FEES NOV/DEC 1982	173.15
TOTAL P.T.D.			196.15
PRESS A KEY TO CONTINUE			

General ledger account details

Editing stock details

DEBTOR NAME-KEY: HODGER		11) CURRENT DEBTOR DETAILS	
1) DEBTOR NAME	R. Hodge International Pty Ltd	15) CURRENT PAYABLE	2429.00
2) ADDRESS LINE 1	122 Harrietteville Drive	16) 30 DAYS PAYABLE	188.45
3) ADDRESS LINE 2	MELBOURNE VIC 3000	17) 60 DAYS PAYABLE	0.00
4) TELEPHONE NO.	67 2376	18) 90 DAYS PAYABLE	0.00
5) CONTACT NAME	Janice Holly		
6) S/T EXEMPT NO.		19) B/F BALANCE	2617.45
7) AGENT NO.	3	20) SALES M.T.D.	2123.00
8) CLASSIFICATION	A	21) SALES Y.T.D.	31328.00
9) CHARGE ACCOUNT		22) SALES LAST YEAR	40609.00
10) INVOICE DISCOUNT	% 12.50		
11) PRICE CATEGORY	1		
12) CREDIT LIMIT	3000.00		
10) LAST PAYMENT DATE	10/12/82		
11) LAST PAYMENT AMOUNT	658.00		

ENTER NO. TO EDIT, <CR> TO CONTINUE

Editing debtor details in a configured system

## RATING: FBS

Documentation	Good
Ease of use	Good
Error handling	Good
Performance	
Management information	Good
Flexible reporting	Good
Operational performance	Good

## GENERAL LEDGER

Documentation	Poor
Ease of use	Poor
Error handling	Poor
Performance	
Management information	Good
Flexible reporting	Excellent
Operational performance	Fair



## HOW TO WIN

Apple's Macintosh computer will be awarded to the entry with the correct answer to the first three questions and the answer to the last question that the judge considers best suits the potential of Apple's Macintosh computer.

Entries will be received by Australian Micro Computerworld until 4pm on April 30th, 1984.

The winner will be notified by mail in May and the result published in the June issue of Australian Micro Computerworld.

# WIN APPLE'S



Pictures



MacPaint

## HOW TO ENTER

Answer the four questions on the entry form.

Add your name and address.

Send the completed entry form to:

'Win Apple's Mac'  
Australian Micro Computerworld,  
Computerworld Pty Ltd,  
PO Box 929,  
Crows Nest, NSW 2065.



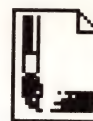
Drafts



Map



Letter broc



Logo



System Folder

## RULES AND CONDITIONS

The only prize will be an Apple Macintosh computer.

Entries close at 4pm on Monday, April 30th, 1984.

The winner will be announced in the June issue of Australian Micro Computerworld.

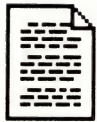
The staff of Computerworld Pty Ltd, and Apple Computer Australia Pty Ltd, or any of their agents, and their respective families are ineligible to enter.

Entries will be accepted only on the entry form (or facsimile) published in Australian Micro Computerworld which shall retain all rights to use all or part of material submitted.

All decisions concerning Australian Micro Computerworld's "Win Apple's Macintosh" competition will be made by the Editor, Australian Micro Computerworld, whose decision is final. No correspondence will be entered into.

Instructions on how to enter the competition, form part of these conditions of entry. Participation in this game implies acceptance of all "Rules and Conditions".





Memo 1 / 24



Empty Folder



Invite



MacWrite

# MAC



<div style="display: inline-block; width: 30px; height: 15px; border: 1px solid black; margin-right: 5px;"></div> <b>Write/Paint</b>		
<b>1 item</b>	<b>322K in disk</b>	<b>68K available</b>
<h2 style="margin: 0;">AUSTRALIAN MICRO COMPUTERWORLD'S WIN APPLE'S MACINTOSH ENTRY FORM</h2> <p style="margin: 10px 0;"><i>Answer the following four questions and enter your personal details.</i></p> <ol style="list-style-type: none"> <li style="margin-bottom: 10px;">1 What are the names of the three people who started Apple Computer Inc.? .....</li> <li style="margin-bottom: 10px;">2 What was the name of the first Apple computer and in which year was it first sold? .....</li> <li style="margin-bottom: 10px;">3 How many different models are there in the Apple 32 Supermicro family? .....</li> <li style="margin-bottom: 10px;">4 Why do you want Apple's Macintosh computer? ..... ..... ..... .....</li> </ol> <p style="margin: 10px 0;"><b>NAME:</b> .....</p> <p style="margin: 10px 0;"><b>ADDRESS:</b> .....</p> <p style="margin: 10px 0; text-align: right;"><b>POSTCODE</b> .....</p> <p style="margin: 10px 0; font-size: small;">Post entries to: "Win Apple's Mac", COMPUTERWORLD PTY LTD, PO Box 929, Crows Nest, NSW 2065.</p>		



IMS

IMS  
582 St Kilda Rd,  
Melbourne 3004.  
(03) 529 4500

WE understand that there are two IMS packages. The Executive is the MS-DOS version and Ascent is for CP/M-based computers. Our review was of the MS-DOS version and we were surprised because we thought it was better featured than it is. The CP/M Ascent package is, we are led to believe, far better.

Of particular note was the lack of good documentation. It was a very frustrating review as we had to work blind. It is a shame that mediocre documentation lets the package down because we found the software to be quite reasonable. In particular, the stock system is very good and the general ledger approaches excellence.

### The manual

Each module has its own manual, and there is a system overview which contains details of system startup, backup and other general matters. They are ring-bound, are booklet sized and have cardboard covers.

The small size of print is a negative factor. One would hope not to have to refer to the manual very often as eye-strain would result. We were not very impressed with the use of screen layouts. These were, in most of the other systems reviewed, used intelligently to assist with the explanation of the use of the various functions. This did not happen frequently enough with the IMS manuals.

The startup procedures are, however, well described. A little more explanation of setting the system capacity would have helped. The manual does not elucidate the significance of setting the "block size", the number of sales dissection records and so on. It also appears from the manual that, once the size has been set, it cannot be changed without erasing. It appears that, from

the tone of the manual, IMS expects the dealer to assist in this area. Perhaps it is the type of service that a dealer can provide, so long as he can be paid for it.

Of all the systems manuals reviewed, we had most difficulty with the IMS manual. Options were not described, the system differed on some occasions from the manual's description, error messages were non-existent. Overall, the manual let the rest of the system down. For example, we noted in the setup of the accounts receivable system that there was an option to extend file size. There is no mention of this option in the manual.

### Accounts receivable

In setting up the accounts receivable system, the IMS system provides more than average in terms of flexibility. The user can specify which of the available fields are relevant to their business. The system then bypasses unnecessary fields.

One item that we have not fully comprehended is the automatic creation of customer numbers. There is no option for manually deciding the customer number. This borders on unacceptable to most businesses we spoke to.

There are 79 possible sales categories available for dissection to the general ledger. The first 20 are preset. Additional sales information includes reporting by salesperson. This feature even provides for entry of sales budget information by salesperson. This is an excellent feature, one not provided by most of the other systems we saw.

In addition to the information on salespersons and their budgets, the IMS system will also produce commission figures. If your company pays sales commissions, you should have a look at this feature.

Another feature was the provision of a six-line comment feature which could be produced on monthly statements. Coupled with this is a letter-writing facility. The feature approaches a word processing facility, although very abbreviated, and uses special control characters for editing and calling in common features.

Some headings can be changed on statements and reports. This, too, adds to the flexibility of the package. The feature requires a bit of a trial and error as the manual gives no indication of field sizes, and when you enter a description that is too long the system truncates it. We also had a problem when trying to establish the number of characters available. We counted out the spaces in the field by beating on the space bar. At the end of the line we hit the return key and were promptly returned to the operating system.

Some difficulty was experienced during setup of the sales tax fields, something we never did get sorted out.

You may experience some frustration from the data entry module. When at the end of the entry of a transaction the system asks, "Details OK?", and you answer "No", the system deletes all your input rather than asking you to return to the field with the error. This is possibly a petty comment as it does not take long to re-enter a transaction; particularly if, unlike us, you rarely make any errors.

One good feature is the control information produced at the end of audit trail reports. The information is useful and does not place undue effort on the user to maintain. This is the only type of control system that works; where the user is assisted, not burdened with control information.

### Accounts payable

Perhaps indicative of some of its first clients, IMS provides a flag field to indicate that the account is in dispute. We can imagine that this would, from time to time, be useful. Let us hope not too often. The disputed account message is displayed on all reports.



There are 10 preset dissection codes; thereafter, the users can set their own.

The user can part-pay an invoice should it be necessary and it provides a balance forward feature, pay all amounts over 60 days. This, to our mind, is a bit dangerous and management would be better off identifying the particular invoices. None-the-less, there are many times when this facility may be useful.

There is an automatic payment selection feature which works on the age-due fields. You can, for example, pay all amounts over 60 days or all amounts available for discount. The only problem with this automatic selection technique is that we could not unselect amounts once selected.

## Stock

This system has the largest possible account code of the IMS package; 10 alphanumeric characters. It allows three possible selling prices and provides both average cost and last cost information.

The IMS stock tries to deal with the problem of multiple warehouses. Warehouses can be named on different disks or, we assumed, different directories on a hard disk. There is still, unfortunately, the problem of reporting information about stock items in different warehouses. Someone who wants data on widgets may have to go to a number of reports (as many reports as warehouses) to get the information.

Another bonus for the IMS user is the use of special code characters which provide special features.

/M provides the facility to enter non-stock items, for services such as labor, /C allows the entry of comment lines on a stock issue, /R deletes the preceding line item and /E supplies the trailer details at the end of the invoice (totals, sales tax, freight and so on). The stock system will produce an invoice should the user so desire.

The system helps the user keep track of orders placed on suppliers. The stock re-order report provides information on stock on order, but there does not appear to be a special

report of stock on order.

We like the flexibility of the stocktake reporting programs. In addition to the reports, there is a special program that assists data entry of stocktake counts. The stock system will provide a list of variances detected from stocktake, but it is a special program which performs the stock master file update.

Among the stock reports there is a sales reporting system. We usually expect to find this report in the sales or accounts receivable system. It is therefore possible for those companies which have very few accounts receivable (customers to whom you give credit) to avoid purchasing the receivable system.

The stock level reporting has two nice features. First, it reports on average or replacement cost. Second, where there is negative stock — a not uncommon situation when someone has invoiced out the wrong stock item — the system does not provide a negative value for the stock. It merely reports zero.

## General ledger

In the setup of the general ledger, the user specifies the number of digits in the account code (up to five), the number of records in the transaction file and the number of records to expect in any batch. The system then asks whether the user will create the chart from the standard chart of accounts. If so, it then calculates the necessary disk storage.

It is likely that the user will use the standard chart of accounts as it is reasonably comprehensive. In fact, we were impressed. The only problem that we had was, once again, we found the manual to be quite inadequate.

The eight-digit code is broken into four plus four; four for major account classification and the remainder for subclassification. The subclassification can be department code, and departmental accounts can be produced.

The setting up of account printing formats is reasonably complex with the need to specify linking accounts for adding purposes, and summary and add-to accounts. The overall

exercise is worthwhile as the printing of reports can be as the user desires, but a little more assistance from the manual would be helpful.

The budget creation modules are interesting. The user can: allocate the same amount over a series of months; change the description field for budgets (although we could not make this option work); increase or decrease an amount at a set rate and round the amount to a predetermined figure, say \$000s.

Transactions can be entered with future dates which do not come into effect until the appropriate date. A feature about transaction entry which will excite the quill penner among us is that it allows the entry of debits and credits. No more pluses or minuses, no more having to remember whether it was pluses or minuses that were nearer the door!

One flexible but dangerous feature is the ability to enter imbalanced transactions. It should not be necessary.

Another good feature about the general ledger was the automatic numbering of entries. It sure does assist the management trail.

The user can return to entered, but not posted batches of transactions. This is a good feature as it provides a reasonable amount of flexibility. The only suggestion that we have is that we would like to see deleted transactions better flagged than they are. It should be obvious which entries affect the ledger.

---

## RATING: IMS

---

Documentation	Poor
Ease of use	Good
Error handling	Fair
Performance	
Management information	Good
Flexible reporting	Good
Operational performance	Good

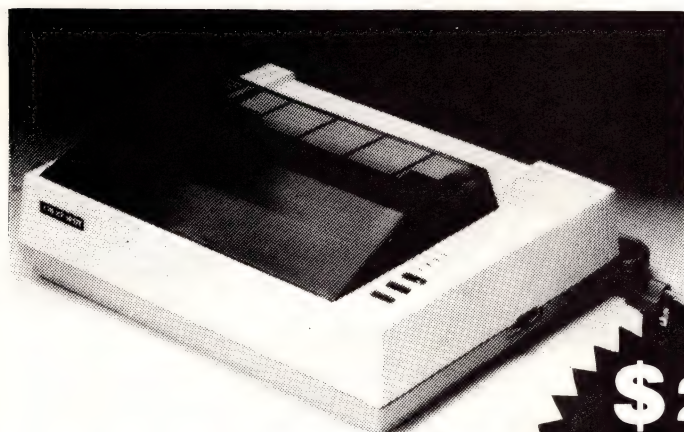
---



# PRINTER PRICE CRASH!

**We've done it again! Every time we drop the price on Australia's top-selling printer our sales double! Oh well, here we go again ...**

You can now buy the runaway best-selling MICRO EDUCATIONAL DT80 printer at an incredibly low price:



**6 MTHS  
FULL WARRANTY**

**\$299 (ex tax)  
\$349 (inc tax)**

**\$8 COURIER  
DELIVERY**

That is so ridiculously cheap I'll repeat it in case you think it's a misprint. The bad news is that you can't buy this printer as cheaply anywhere else. Only Micro-Educational has this low price because only Micro-Educational has the volume. The good news is that we are the biggest printer retailer in Australia so you can buy from us by phone or mail with CONFIDENCE. We will give you great products, lowest prices, friendly service, overnight delivery and 10 day money-back and 6 months service warranties. (We have full service facilities).



*That's me.  
George.*

*Hello again,*

What a February that was! We sold so many of these printers the manufacturers offered us a price reduction. We didn't even have to ask! So we are passing the savings on to you again. Incidentally, to avoid confusion with all those expensive names (you should know by now they're all the same printer) we have called it the MicroEducational DT80 and have arranged stocks through till April.

New arrivals include some very nice lockable disk boxes at \$35 (hold over 100 disks), TEAC Super 5 drives (\$299 ex, \$339 inc) and, of course MicroEducational disks (same as Le Floppie by Control Data).

If you would like to buy computer products with convenience, reliable delivery, full warranties and above all rock-bottom prices, why not join our thousands of satisfied Bankcard phone-order customers. We'll treat you like a friend of the family.

*George*

You can run this printer from virtually all computers and we have cards and cables to connect it to Apple \$110, IBM PC \$40, OSBORNE & TRS-80 \$35, MICROBEE \$45, and ATARI \$95, T1994A \$35, as well as serial cards for other micros.

The printer features superb quality print, EPSON compatibility, friction and tractor, graphics, 80cps etc etc.

This really is an amazing Japanese printer. We are presently selling over 300 units a month and have every intention of quadrupling that figure this quarter. Consequently we have no intention of being undersold. By anyone!

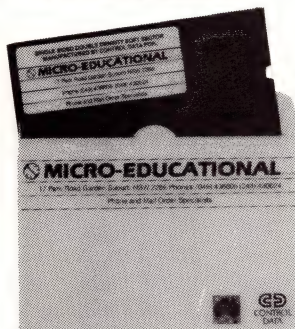
To order your AMUST DT80 just phone me, George Parry, on one of our lines and quote your Bankcard number for next day, delivery, or else send a cheque/money order to the above address. Include \$8 for courier delivery (\$10 outside capital cities). Delivery is by Wards Express Courier. Grab one NOW!



**17 PARK ROAD GARDEN SUBURB NSW 2288.  
(049) 436805 (049) 430624**



## DISKS



**\$29**

(EX TAX)

**\$32**

(INC TAX)

Delivery  
1 Box \$2  
More than 1 Box \$5  
(Courier Del.)

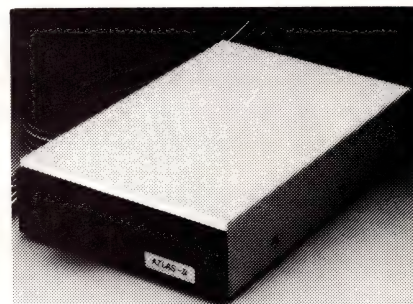
You'd be crazy to pay more!  
These are the same disks you are presently paying \$55 for. Exactly the same!  
Micro-Educational single-sided double density disks with reinforced hubs in plastic library cases. Manufactured in Australia by Control Data for use in Apple, IBM, Commodore 64 and all popular micros. Take advantage of our massive buying-power discounts:

1 BOX \$32 inc tax/\$29 ex tax  
10 Boxes \$290 inc tax/\$260 ex tax  
BULK: Take \$2 off per pack.

## ATLAS-8SLIMLINE for APPLE

**\$299**  
(ex tax)

**\$339**  
(inc tax)



## DOT MATRIX PRINTER

C. ITOH

1550



**\$875**

(ex tax)

+ \$5 COURIER

**\$975**

(inc tax)

## VISION-80 COLUMN

**\$179**

(ex tax)

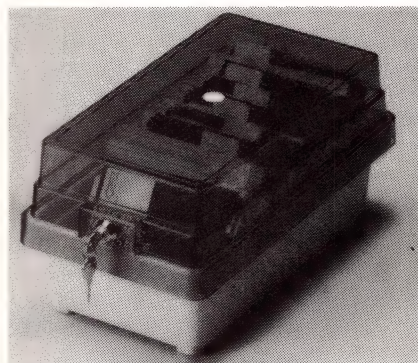
**\$199**

(inc tax)



80 Column Text Card + \$5 COURIER  
for Apple II or IIe (please specify)

## LOCKABLE DISK BOX



**\$35**

## MORE TOP-SELLING PRODUCTS

	(inc tax)
16K Card for Apple II+	\$90
Z80 Card (Apple)	\$90
NEC Green Screen	\$170
SANYO Green Screen (the Best)	\$275
MICOM JOYSTICK for Apple	\$45
SNAPSHOT	\$90

	(inc tax)
DT80 RIBBONS	\$12
TEAC SLIMLINE	\$339
VISION 80 128K RAMCARD	\$395
SPEECH SYNTHESISER	\$75
APPLE MOUSE Function Extender	\$79



17 PARK ROAD GARDEN SUBURB NSW 2288.

**(049) 436805**

**(049) 430624**

SEND FOR FREE CATALOG



# SYBIZ

**Sybiz**  
27 Hutt Street,  
Adelaide 5000.  
(08) 223 3366.

SYBIZ is a fully integrated package. In this respect, it allows users to cut down on wasteful duplication. But this integration also restricts the operations of a business, as it works best when a business is constantly up to date with its accounting.

Many businesses find this very difficult. Modules can be run separately, but this detracts from the original design and advantages of the package.

Perhaps the most important feature to note is that Sybiz appears happy to tailor its package to business' needs. Admittedly, this is at a cost, but this is likely to be a better solution than going without. No other totally packaged solution could offer this.

Although we are uncertain, we believe the package's origins lie with Hewlett-Packard computers. This is apparent from the structure of the screen input, which makes extensive use of the function keys.

We found the constant searching of the screen for the appropriate function key a difficulty, but we imagine this is because we are not familiar with this type of data entry. It would be less of a problem to someone who knew no different, or had we used the package for some time.

With the data-entry modules, the data does not display in the relevant area on the screen until after the return key is pressed. It appears spreadsheet-like in a data-entry area, making for some discomfort from time to time. Nothing major, just aesthetics.

Overall, the package provides a good, but not great, accounts receivable, accounts payable and stock system; its general ledger, we believed, could have been better.

## The manual

If you have a personal computer

sitting on your desk, you have already lost half your available desk space. The Sybiz manual takes over the other half.

Your work goes into your lap, then on to the floor. We would hate to have to make decisions about product packaging; they are so easy to criticise.

The Sybiz manuals are unique in one fashion. They are divided by operational rather than functional usage.

There is a section on data entry covering all accounting modules, a section on reporting with sub-sections for each module, a section on setup covering all modules, and so on. This indicates the nature of this package (as of all packages reviewed). It is the most highly integrated.

The manual, although reasonably clear and concise, was not supported by sufficient screen or report layouts which usually enhance the reader's understanding of the text. We thought the first-time user could have been given a little more support in the manual.

On a more positive note, we found the setup well explained — well enough for the average dealer to feel comfortable allowing users to do the task themselves. We found that, by using the index, we could find our way reasonably well to the right spot.

## Accounts receivable

The first unique factor in the accounts receivable system was the provision of 16 categories of salesmen's commission, each with its own rates and sales and budget reporting. We know of many businesses that would enjoy this feature.

Another feature that would help businesses setting up their customer accounts for the first time provides, during master file building,

a default value of the last account code entered. It may not save much time, but anything that saves time during this tedious phase is a blessing.

There are two methods of entering sales data into the debtors' system. The first necessitates the printing of invoices, and although data entry is superior in a number of respects, including automatic calculation of sales tax upon input of tax code, there is no deferral-of-invoice printing. Therefore, the user has to wait for each invoice to print before entering the next.

The second method of sales data input is by way of hand-written invoices. We did not like the sales-tax operation under this mode, as the field does not default display with the correct tax. Rather, it defaults with a zero value.

Another aspect we did not like was that the system did not default with the unit cost under this method of data entry.

Therefore, the buyer who is also after a system which will help prepare invoices will find a bonus with the Sybiz system. Because of its integrated structure, this feature comes as standard. We did feel, however, that the process would have been improved if there was delayed printing of invoices. It is unreasonable to expect someone to wait 30 seconds to a minute every time they enter a transaction.

The most useful feature of the Sybiz accounts receivable system was the "see before you print" feature. Reports can be output on to the screen and, if you wish, printed. This is a step towards the paperless office.

Generally, the user can select just the report needed by the provision of parameter-driven reporting. Together with the ability to view reports on-screen, Sybiz seem to be the leader in flexible reporting.

## Accounts payable

Because of the common input concept, it is difficult to comment further, having covered most areas in the receivable section. The selection of management reporting information is, however, different from receivables.



It is not as flexible, but did present several interesting items. For example, there is a report which shows amounts payable in seven, 14 and 21 days. Imagine how good this could be for small businesses!

## Stock

Access to the stock system is through the accounts receivable system for stock issues and accounts payable for purchases. The only entries through the stock system are through stocktaking and transfers to job costing. (Remember, this is a totally integrated package.) It allows the user to sell more stock than the system records as being on hand, but provides an appropriate error message. It will also place items on backorder, if you wish.

We did have a problem with an apparent bug in the system when we tried to indicate that we wanted normal pricing on an item we had on

backorder. We are confident it was just a system problem and was not a problem in the package.

Reporting is quite extensive. Sybiz provides some unique reports. For example, there is a report of stock on order and another which shows stock below the monthly stock level.

This last report is supported by a feature to indicate how many months stock-holding is required. Sybiz also reports the average sales in the previous three months — a feature that is better than the average sales history report.

## General ledger

Sybiz is full of surprises. The user can choose to list account numbers alphabetically. Some non-accounting-based users may ask why all packages aren't like this.

The accountant who wants to use numerics, however, is restricted to a pre-set chart of accounts. The

income statement accounts are 1-89, the cost of sales report accounts are 90-199, the profit and loss are 200-599, non-operating profit accounts are 600-699 and balance sheet accounts run from 700 to 1899, with brackets for different classes of assets.

This numbering system would suit many companies, but would not suit others. But this may be offset by the availability of up to 16 ledgers for company groups.

We were surprised to find that, although the system restricts the user to various ranges of account numbers, it does not provide a standard balance sheet. This invites users to buy Syrep, the report generator.

But as we have indicated elsewhere in this article, we believe modules should stand alone. We can understand why there is no standard balance sheet; it is so difficult to get companies to agree to a standard format.

CAPACITY PER DISK	TOTAL OF 2 DISKS		TOTAL OF 3 DISKS	
	SYBIZ RECORDS	TRANSACTION CAPACITY	SYBIZ RECORDS	TRANSACTION CAPACITY
200K	800	2400	1600	4800
250K	1000	3000	2000	6000
320K	1280	3840	2560	7680
380K	1520	4560	3040	9120
600K	2400	7200	4800	14400
1000K	4000	12000	8000	24000
1.2M	4900	14750	9800	29500
5.0M	20480	32767	40960	32767
10.0M	32767	32767	32767	32767

Table of Sybiz transaction capacities.

## RATING: Sybiz

Documentation	Fair
Ease of use	Good
Error handling	Good
Performance	
Management information	Fair
Flexible reporting	Good
Operational performance	Fair

# INFORMATION BUSINESS MANAGER

## A COMPLETE BUSINESS SYSTEM

★ **2.6 MEGABYTES** OF DISK STORAGE (HARD DISK OPTIONAL) ★ Z80A 64K CPU EXPANDABLE TO **832K** ★ 80 x 24 GREEN SCREEN TERMINAL WITH DETACHABLE KEYBOARD ★ CP/M 2.2 ★ REAL TIME CLOCK ★ EXPANDABLE TO **4 USERS** ★ AUSTRALIAN DESIGN, LOCAL SUPPORT AND SERVICE ★ **12 MONTHS WARRANTY.**



FULLY INTEGRATED ACCOUNTING SYSTEM including:

- ★ DEBTORS
- ★ CREDITORS
- ★ STOCK CONTROL WITH INVOICING
- ★ GENERAL LEDGER

**\$4160.00**  
(including tax)

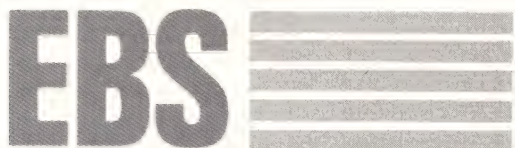
**A & M COMPUTER SOLUTIONS PTY. LTD.**

(Incorporated in Victoria)

2 Prospect Hill Road, Camberwell, Vic. 3124.  
Telephone: (03) 818 3022.







**Power Software**  
**Suite 5, 77 Albert Ave,**  
**Chatswood 2067.**  
**(02) 419 5500.**

THE EBS system is not your traditional accounting package and, sometimes, we wonder why it was included in the review. It is what one could call an "accounting application generator". The software can, in the right hands and those hands given sufficient time, be made to produce almost any accounting system (we saw the EBS people develop, in one day in our office, a basic accounting system!).

The EBS system comprises the skeleton of the format for the four traditional accounting packages (the four units that we review in this article) plus some configuration facilities.

The first level of configuration is termed "parameter setting". This allows the user to specify some global information about the environment under which the applications will operate such items as: the number and length of fields; the number of records; the number of files (explained later); whether the system will be open item or balance forward; type of printer; function key definition; color monitor; system clock; basis of aging of outstanding debts.

Some information entered at this time does not appear to be environment specific. You should consider, however, that the choice of some features will impact storage requirements and, consequently, need to be evaluated at this time.

The setting of parameters is not a feat that should even be contemplated by a first-time user. It is one that requires the operator to attack the various printer and system manuals to establish the appropriate control characters.

The second level of configuration occurs within each module. The user can define data entry procedures, set integration features, set tax codes and so on. Having completed this, the EBS system

provides report generators to design the necessary reports. It is even possible, but not necessary, to design the layouts for statements, invoices, remittance advices. As a further novel feature, the EBS system even provides a text editor within each module to produce letters and memoranda using the data stored in the system. One can even set parameters at the time of generating a letter to select records based on various characteristics. For example, one could send a nasty letter to all customers who owe more than \$1000 for more than 90 days.

There are two items worthy of special note: the definition of the function keys and the limitations on field size.

The user can stipulate whether, at data entry time, the F1 key deletes the line of entry or just a character. A more in-depth example is given later. Another unique facility allows the identification of a footer area on the screen where the user can perform arithmetic in the same way as he may use a calculator. This feature was most unexpected and quite delightful to use.

A large number of fields are supported for file: master, info 1, info

2 and transaction for each accounting modules. Eight sales tax fields are supported and account codes can be to 20 alphanumeric characters.

As you can see, the size of the files is very large and it will be the limitations of the hardware that is most likely to be the problem. EBS has even thought of this. There is, within each module, a disk storage space calculator which allows the user to experiment with various configurator options to find the best possible solution.

### The manual

We did not receive a copy of all the relevant manuals; we missed out on the accounts payable manual and the general ledger configurator manual. Our comments, however, should still apply.

The manuals are ring bound and soft covered in a light plastic. We found them to be neither attractive nor easy to work with (they were too large) and they were difficult to store (we could not stand them on end).

Each module has two manuals; one for configuring the system and one as an operations guide. The latter was indexed in setup order, not menu sequence, which we have generally found easier to follow. The operations guide goes as far as suggesting where to site the computer, disk handling procedures, planning for the changeover of systems and other basic issues. The first-time user will most likely find

#### MAIN MENU

- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| 0 EXIT TO COMMAND LEVEL           | 30 CUSTOMER FIELDS                    |
| 1 CREATE FILE                     | 31 SALES FILE # 1 FIELDS              |
| 2 READ EXISTING FILE              | 32 SALES FILE # 2 FIELDS              |
| 3 SAVE ALL VALUES ENTERED         | 33 TAX RECORD                         |
|                                   | 34 TRANSACTION RECORD                 |
| 10 SET TERMINOLOGY PARAMETERS     |                                       |
| 11 DATE TYPE                      | 40 SET PERIOD END CONTROLS            |
| 12 COMPANY SCREEN NAME            |                                       |
| 13 FULL COMPANY NAME & ADDRESS    | 50 PRINTER CHARACTERISTICS            |
| 14 SET UPPER/LOWER CASE LETTERING | 51 SET MULTI PROGRAM DISKS            |
| 15 TAX DESCRIPTIONS               | 52 MENU OMISSIONS                     |
|                                   | 53 SYSTEM WORK FILE                   |
| 20 AGING BASIS                    |                                       |
| 21 SET OPEN ITEM/BROUGHT FORWARD  | 60 LOAD 'FILSET' PROGRAM              |
| 22 SET PERIOD BASE DATE           |                                       |
|                                   | 70 DISK SPACE REQUIREMENTS CALCULATOR |

#### System configuration menu



this very useful. Another aid for the first-time user is that the manual goes to great lengths to avoid the use of jargon, explaining it when it is used rather than putting it into a glossary at the back of the document.

It is unfortunate that the same attention that has gone into the development of the screen graphics has not also gone into the manuals. As a generalisation, we believe that graphical demonstrations in a man-

ual are very useful aids to better understanding of the text.

With the user designing his own system, the manuals cannot cover data entry in the depth that other systems can. It is incumbent on the manager installing the system to write this section of the manual. Possibly the EBS system, realising this situation, should provide a draft manual to help with the preparation of the operating instructions. Imagine how fantastic it would be if this could be supplied on disk. The EBS system does, after all, come with text managers.

Arguably the most important part of the manual is the report generator instructions. This, fortunately, is well written and even the novice, after working through the supplied examples, should feel comfortable to go on and produce reports.

There is one area for improvement by the EBS people. The general ledger manual that we saw was not adequate and we struggled with it for some time.

As far as error messages go, we found that the manuals did not provide a basic list and we believe such a list to be imperative.

## Accounting systems

You cannot imagine how tickled we were when we reviewed this system. So many things have been well

thought out; even the date. Once the user has entered the date to the system for the first time it keeps track of days itself; it goes as far as remembering and adjusting for weekends. On entering the system, it displays the last day of operation, the following day's date or allows the entry of another date. You select whichever you want.

Instead of going through each module separately, we will browse through the system, commenting on various aspects along the way. It is the best way to describe the features of this system.

In the system configured for us, the function keys support a good set of field editing features.

The two additional files set up for us in the accounts receivable system were a salesperson file containing names, addresses, commissions and so on and a product category file for verification and summarisation of product information.

One unique and thought-provoking feature was the provision of housekeeping facilities which include a file reorganise function which is run after masterfile building and maintenance entry, and a file information function to report on the number of active accounts, the number of vacancies for more masterfile records and so on.

It is thought provoking because we are unable to decide whether or not the user should be isolated from such technical issues or provided with the tools and the information to step into the 20th century and manage their facility.

```

YOUR COMPANY NAME APPEARS HERE
DISPLAY CUSTOMER FILE RECORDS    SUNDAY    15/ 8/82

ENTER CODE: 1234          [BAL:    0.00]

[ 1] CUSTOMER NAME..... J.S. & K.P. SMITH PTY LTD
[ 2] CUSTOMER ADDRESS.... 125 CORNERSTONE DRIVE
[ 3] CUSTOMER ADDRESS.... VIA OLD CREEK CROSSING
[ 4] CUSTOMER ADDRESS.... BOURKE QLD
[ 5] TITLE..... JOHN
[ 6] ALPHABETIC CODE..... SMI
[ 7] POST CODE..... 4598
[ 8] CREDIT LIMIT..... 12500.00
[ 9] DATE LAST SALE..... 0/ 0/ 0
[10] DATE LAST PAYMENT... 0/ 0/ 0
[11] TELEPHONE NUMBER... (023) 123 4567

[RETURN]=SCROLL [P]=PRINT OR [TERMINATE] []

```

First page of customer details

```

YOUR COMPANY NAME APPEARS HERE
DISPLAY CUSTOMER FILE RECORDS    SUNDAY    15/ 8/82

ENTER CODE: 1234          [BAL:    0.00]

[12] CASH RECVD THIS MTH:    0.00
[13] CURRENT BALANCE..... 0.00
[14] 30 DAY BALANCE..... 0.00
[15] 60 DAY BALANCE..... 0.00
[16] 90 DAY BALANCE..... 0.00
[17] PURCHASES MTD..... 0.00
[18] PURCHASES YTD..... 0.00
[19] COST MONTH TO DATE... 0.00
[20] COST YTD..... 0.00

[RETURN]=SCROLL [P]=PRINT OR [TERMINATE] []

```

Second page of customer details

```

YOUR COMPANY NAME APPEARS HERE
DISPLAY STOCK FILE RECORDS    SUNDAY    15/ 8/82

ENTER CODE: 1234

DESCRIPTION.....: 2 drawer filing cabinet deluxe
UNIT OF MEASURE.....:
COST PRICE.....:
SELLING PRICE 1.....:
QUANTITY BREAK 1.....:
QUANTITY BREAK 2.....:
QUANTITY BREAK 3.....:
QUANTITY BREAK 4.....:
SELLING PRICE 2.....:
SELLING PRICE 3.....:
SELLING PRICE 4.....:
VENDOR.....:
LOCATION.....:

[RETURN]=SCROLL [P]=PRINT OR [TERMINATE] []

```

Editing stock entry in a configured system

```

YOUR NAME APPEARS HERE
STOCK MENU DAY OF WEEK    DATE

[ 1] DATA ENTRY / GLOBAL CHANGES
[ 2] FILE MAINTENANCE/INQUIRIES
[ 3] REPORT PRINTING
[ 4] END OF PERIOD & SPECIAL JOBS

CHOOSE ONE: [ 0]

CSRUP = ENTER DATE

```

Stock menu

There are up to 99 different transaction types; all user defined. Our accounts receivable system had four, so you can see how much flexibility one can achieve. ►



# support for your success



future  
business  
systems

## business software that really works

Our systems are installed successfully all over Australia in businesses similar to yours.

**Future Business Systems (or FBS for short), has been designed and developed in Australia for Australians.**

FBS has been designed to run on most major brands of micro and personal computers, both floppy and hard disk based. With FBS, you are free to choose your computer.

A large network of FBS dealers exists throughout Australia to support you.

We at Future Business Systems have been in the computer software business since 1964 and we believe we know what we're talking about.

### Future Business Systems

Suite 6, 105 Hawthorn Road,  
Caulfield North, Vic. 3161.

(03) 523 9211

## REVIEW

We cannot go through the features of any of the systems in detail as due the user specification facility; even the unique features are endless. There are, however, some items worthy of special note.

The system is so flexible you can even decide whether or not you will produce an audit trail. Boy, is this a recipe for disaster! Give some people an inch of rope such as this and . . .

The system comes with the necessary reports and forms (invoices, statements, remittance advices) drafted. The user can, of course, change these.

The text editor can be used independently of the accounting packages or in conjunction with them.

One of the possible uses of the additional files available with the stock system could be as a stock location file. In this way the user could get a list of all the locations in which a specific item is stored.

The general ledger provides a choice of either a 14-digit alphanumeric code or a 15-digit numeric code with a check digit. The system will even calculate the check digit amount for you.

There are three levels of report generator available with the general ledger. The first consists of specifying report formats within the chart of accounts. The second will produce general ledger type reports (such as trial balance). The third will produce financial reports and it allows up to 99 notes to be attached; each up to three pages in length. Our only gripe is that this section of the manual is not informative enough.

The general ledger specifically addresses the cash book as a source of entry. It is probably the most important of the basic accounting records, and EBS has justified this by producing this module.

### General comments

Perhaps the EBS system is a picture of things to come. At the moment, if you asked "where do you get it?" the response would be: from the originators/designers. We are not aware of any dealers who carry it, although we are sure that the dealers

will find it if you persist.

It is a difficult package for dealers to sell as, in general terms, they would prefer a package that did not involve a lot of training to be able to sell and support it. After all, there are so many new items of hardware and software coming on to the market each week to evaluate and learn about. To sell and configure this package, a minimum of a week may be needed just to learn the basics. On the other side of the coin, a package such as this could increase the software development side of the dealer's business and, in doing so, reduce the problems that occur from the vagaries of hardware availability (either no one can supply or there is cost cutting due to a glut).

The Power Software people who have developed the EBS system will also have to be careful through which sources their systems are supplied. Poor installation will have long-term negative effects.

It is, perhaps, still early days for this package and, in addition to the distribution problems, there is the odd program bug in the system. These types of things will, hopefully, be ironed out in the future and, if so, this package may be a world beater. **m**

### RATING: EBS

Documentation	Fair
Ease of use	Good
Error handling	Fair
Performance	
Management information	Excellent
Flexible reporting	Excellent
Operational performance	Excellent





**AUSTRALIA'S  
FIRST  
INTERNATIONAL  
MICRO-  
COMPUTER  
EXHIBITION  
AND  
CONFERENCE.  
22nd—25th May  
1984**

ENDORSED BY:  
Government of Western Australia,  
Australian Computer Society,  
Western Australian Institute  
of Technology,  
Australian Micro Computer  
Magazine,  
Australian Computer World.

FOR CONFERENCE DETAILS  
PLEASE CONTACT  
ROBYN SCOTT  
TEL. (09) 350 7717



For further details contact: Jenna Ledgerwood, Computer Exhibitions International  
190 Hay Street East, Perth, Western Australia 6000. Tel: (09) 325 0111. Telex: 94124

Enter S042 on Enquiry Card

# HOME, PERSONAL, SCHOOL and BUSINESS COMPUTERS

**commodore**  
**VIC-20 & 64**

**sirius**

**Chameleon**  
IBM-PC COMPATIBLE  
PORTABLE

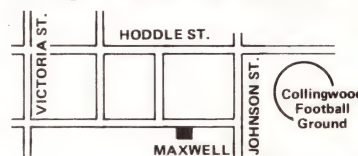


Melbourne's largest range of programs  
Friendly expert advice and service  
Easy access — plenty of parking

**OPEN SATURDAY MORNINGS**  
Established 1968 — Member of O.E.I.A.

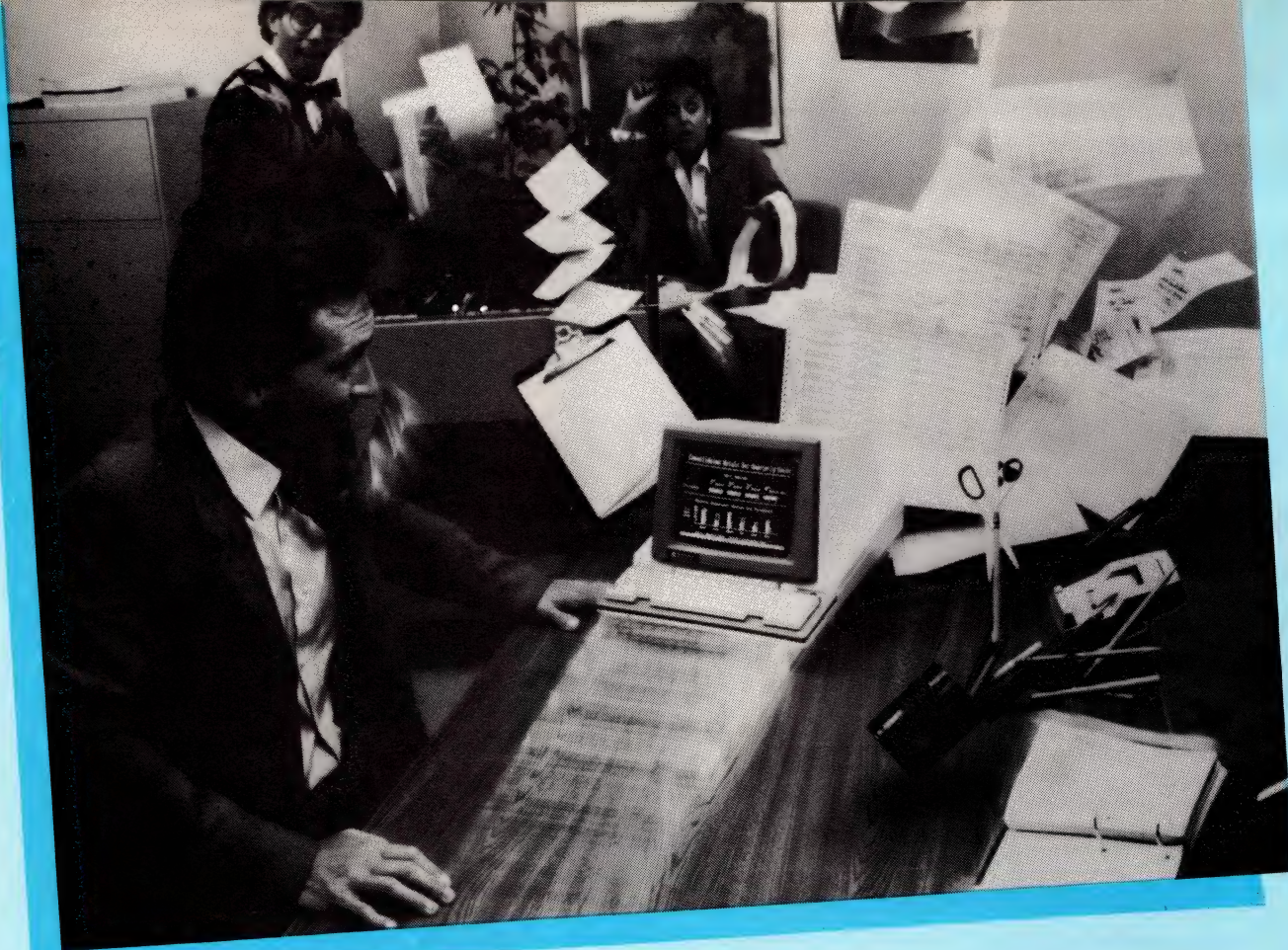
**Maxwell**

**OFFICE EQUIPMENT (VIC) PTY. LTD.**  
162-164 NICHOLSON ST. ABBOTSFORD  
(near Hoddle Street) Telephone: **419 6811**



Enter S041 on Enquiry Card





# CLEAR YOUR DESKS FOR THE PERSONAL TERMINAL BOOM.

Introducing a desktop revolution. The Personal Terminal from TeleVideo® — a compact new terminal for people who've forgotten what the finish on their desktops looks like. It isn't intimidating. It doesn't require programming knowledge. And it costs much less than a full-sized terminal. Clearly, the Personal Terminal will simplify the way your company works.

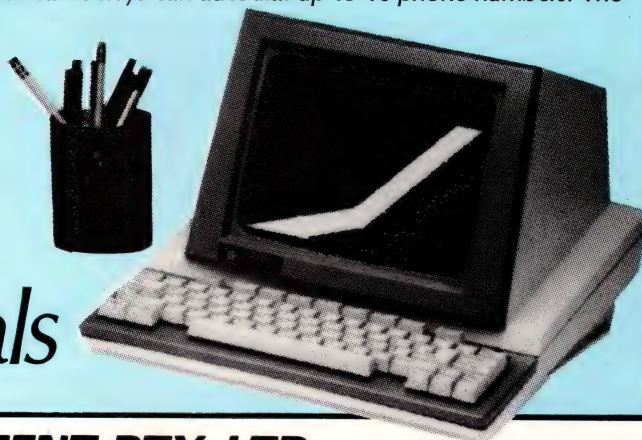
Want communications capabilities? Two RS-232 communication ports are standard equipment. An attached telephone option is available. And two optional, internal modems (300 or 300/1200 baud) put managers on-line with data services in seconds.

Want to expedite data retrieval? The Personal Terminal has 7 function keys (shiftable to 14) that reduce often-used commands to one key stroke. With a modem installed, those same keys can autodial up to 10 phone numbers. The built-in directory feature lets you autodial up to 18 more.

Send and receive electronic mail. Check inventory.

Review sales and traffic figures instantly with the Personal Terminal. The 9-inch screen is easy to read. The professional keyboard is easy to use.

The Personal Terminal from TeleVideo. The desktop connection to a more intelligent, productive and cost-effective office environment. Isn't it time you got in on the information management boom?



## TeleVideo® Terminals

TeleVideo Systems, Inc.

**ANDERSON DIGITAL EQUIPMENT PTY. LTD.**



P.O. BOX 422, CLAYTON, VICTORIA 3168, AUSTRALIA. PHONE: (03) 544 3444.  
 P.O. BOX 341, PENNANT HILLS, NSW 2120, AUSTRALIA. PHONE: (02) 848 8533.  
 Adelaide: 46 4062. Perth: 387 6055. Tasmania: (03) 544 3444. Canberra: 58 1811.  
 Brisbane: 352 5788. Newcastle: (049) 69 6467. Wellington: 69 3008. Auckland: 59 0249.  
 Christchurch: 483 991. Darwin: 81 5002. Singapore: (65) 449 4433. Wangaratta: (057) 21 6443.



**IDC says there are more than one hundred and fifty multi-user microcomputer systems available in Australia. Tony Smith considers the past, present and future of multi-user microcomputing**

# MULTIPLICATION: That's the Name of the Game

FOR the third time in the history of computing, machines originally designed for single users have evolved into multi-user systems.

The earliest computers, much later known as mainframes, and with considerably less capacity than today's personal computers, were designed to process one job at a time — the input having been prepared remotely on punched cards and the output being printed as the program ran. Because of the high price of such computers, they were not regarded as single-user systems. The systems in which jobs were started manually one after the other became known as batch processing.

Evolution of the capacity to handle multiple, simultaneous users was more painful for mainframes than it later was for minis and micros, both of which had at least that first learning exercise on which to build. Key steps in that evolution were the introduction of operating systems with a class of privileged instructions to directly control the computer hardware, queue batch jobs on a disk file and spool printer output.

Multiple queues provided a number of concurrently executing tasks, each in its own memory "partition",

so as to use still expensive system resources more efficiently. All were precursors of the connection of terminal-based users to individual "on-line" partitions, sharing machine resources with the batch jobs and other online users.

Minis and microprocessors at least began with architectural support for a privileged operating system mode, even though their relatively limited capabilities were not initially considered powerful enough to provide useful multi-user support. In both cases, clever software designers decided that multi-user concepts which had been developed on the resource-rich scale of mainframes could sensibly be migrated down to the much more restricted environments of early minis and, some years later, early micros.

Minicomputer suppliers then got into the act — particularly as main memory prices fell faster than any other cost — and added architectural enhancements such as memory mapping which greatly accelerated the development of multi-user power.

Failing to read the lessons of history, early microcomputer developers were certain that such simplistic devices as microprocessors would be

used only for basic, single-user computers and special purposes such as control systems.

Fortuitously for the eventual development of multi-user micros, early designers of general-purpose microcomputers were so pre-occupied with minicomputer architecture that they built their systems on boards which were connected by a 20-slot S100 bus, providing more potential expansion space than would be occupied by the processor, memory, input-output controller and special-purpose boards for most users.

Bus architecture for microcomputers provided a cheap entry point for aspiring hardware designers. Such people needed to build only those parts of the system in which they were particularly interested, being able to pick up the bus motherboard, other general-purpose cards and peripheral equipment from the blossoming ranks of such suppliers.

The S100 bus, and other purported standard buses which followed it, quickly gathered enormous communities of suppliers of particular boards to fit every conceivable requirement. The notorious shortage of funds for hardware development in Australia and the surfeit of under-▶



occupied but talented designers has provided this country with more than its share of low-volume manufacturers of bus-based systems.

The spare real estate in most S100 systems focused attempts at one of the first two competing strategies for the inevitable development of a multi-user capacity for microcomputers. The falling cost of 64K-byte, single-board processors led to some of the S100 companies deciding they could afford to connect one such board to each of several user terminals, plus an extra one to achieve overall system control.

The first aim of those companies' software designers was to provide each user with an interface which looked exactly like the unfortunate de facto industry standard operating system CP/M, which providing controlled access to shared resources. Some produced proprietary systems but, most important, a specialist software company produced TurboDOS to suit the needs of such a computer. TurboDOS could also be extended to serve local area networks (LANs) of Z80-based systems.

Such shared bus systems are logically equivalent to LANs, the bus replacing the cabling used to connect conventional LANs, often being referred to as "internally networked". With the ease of entry provided by bus architecture and the availability of TurboDOS, it is hardly surprising that about half the shared bus systems available in Australia are locally produced, something which cannot be said for any other major class of computers.

The alternative approach to providing multi-user micros has been to share the processing capability of a single main processor with more than one concurrent user, using methods which had previously been tried and proven with mainframes and minis. When one user's program needs to access a disk or printer, for example, or possibly when an interval timer says it has been running long enough, the program will be interrupted and control of the system passed to the operating system program.

When the operating system has finished responding to the interrupt,

it will decide which user is ready and due to start executing next. Because microprocessors may execute in the order of a million machine instructions a second, the amount of time lost in switching between a small number of concurrent users several times a second is hardly significant. All users are given the illusion that their programs are running concurrently. On an ideal system, alternative users are simply using the time that each other would waste waiting for peripherals.

Attempts to achieve concurrent processing on the original generation of 8-bit microprocessors were only marginally successful because of such real limitations as the range of addressable memory. But more recent 16- and 32-bit processors have provided real impetus to such architectures, including the opportunity for such memory-hungry operating systems as Unix to migrate downwards from the world of mini-computers.

A rash of "standard formula" Motorola MC68000 processor/Unix-based systems apart, it is hardly surprising that the several Australian-designed multi-tasking micros display architectural idiosyncrasies which have been cultivated into lucrative vertical markets. This follows the tradition of the breed to local turnkey system houses that rode on the back of the minicomputer boom.

The low entry cost is the main reason why hundreds of suppliers of multi-user micros seem to survive around the world, backed by the failure of any supplier to seriously grab a major share in the potentially lucrative market — ICL's protestations to the contrary notwithstanding.

Australia has attracted most significant players from both the US and Asia, as well as a disproportionate number of indigenous companies to this poorly structured battleground. Multi-user systems are steadily replacing, for all intents and purposes, most markets pioneered by low-end minis over the past decade.

It is hardly surprising that the pioneers of the mini market are now rebuilding their original systems as micros, thus providing a new lease of life for the significant body of soft-

ware developed on such systems and a new, third factor in the evolution of multi-user micros.

With the big guns of the industry committing such high stakes to the development of personal computers, it may well be that the window for multi-user micros may soon be shut by the development of even more effective LANs to connect dedicated single-user systems.

## OPERATING SYSTEMS

THE plethora of multi-user systems can be catalogued sensibly by operating system — the operating system available on any machine giving a strong indication of that machine's architecture. Operating systems can be broadly categorised as proprietary or portable, with proprietary systems generally preceding portable systems in history, thus running on older machines.

Proprietary systems range from those which were truly specialised developments for specific hardware and application software requirements through to various degrees of imitation of the major portable operating systems, CP/M and Unix.

The development of multi-user micros has been dominated by the convergence of the separate spheres of influence built up around CP/M, the minimal operating system for single-user computers, and Unix, the well-structured and heavily featured equivalent developed for powerful minicomputers.

The few completely original alternatives in between were designed for specific purposes, most others simply being attempts to transport selected features of a true operating system down into the 8-bit microcomputer world of limited resources. The classic example of a truly proprietary operating system is the one developed by Sydney company System One to give its own 64K-byte Z80-based systems five-user capacity when running the range of accounting applications developed



specially for it in Assembler.

Many other attempts at bottom-end, multi-user systems concentrated on providing an operating environment which appeared exactly the same as CP/M to both users and application programs, either for multi-tasking use of a single, central processor chip or several processors sharing a bus. The development of proprietary Unix-like operating systems has been dominated as much by the complexity of licensing arrangements surrounding it as by its detailed features.

Unix was originally developed by Bell Laboratories, the research arm of the then US telecommunications giant AT&T, for internal use on DEC's range of PDP-11 minis. The concepts developed within Unix seeded the development of more attractively packaged proprietary operating systems for the emerging supermini computers. Bell Lab's innovative strategy of selling source and run-time licences for Unix, in the commercial marketplace as well as offering it to universities for little more than the cost of the magnetic tape on which it was delivered, ensured Unix would be widely accepted.

Unix is written mainly in C programming language, which requires only a small compiler, with machine-dependent code in both the C compiler and Unix at an absolute minimum. Therefore, it became easy to move Unix to other computers, a process known as "porting". Wollongong University has received acclaim for its port of Unix to Perkin Elmer minicomputers.

This has led to both software and hardware companies producing their own versions of Unix, with several being made available for a number of machines, notably Microsoft's Xenix, Whitesmith's Idris and, locally, Sironmath's Sironix.

Hardware manufacturers' Unix-like systems have varied from straight ports of Bell Laboratories' product to imitations which, to the end-user, look similar, but rely on some conveniently available foundations rather than the proper layered approach underlying Unix, and thus avoiding licence fees. Several revisions of Unix have been marketed by Bell

## MULTI-USER/MULTI-TASK/MULTI-PROCESSOR

DIVERSE approaches to designing microprocessor-based systems able to serve more than one user simultaneously have led to a plethora of terms which are often confusingly mixed: multi-user, multi-tasking and multi-processor.

This report's scope is multi-user microcomputers, the class most simply understood as being those systems which provide concurrent access from more than one user terminal. Multi-tasking systems are those which enable a processor to be shared between a number of logical tasks by switching its attention between them as required.

Concurrent CP/M and the rush on new windowing systems are the latest developments of multi-tasking on single-user systems. Within the approaches to incorporating more than one processor in the same functional computer, two major trends have emerged.

The advent of microprocessors has opened up the new option of dedicating separate processors to specific functions within a system.

Alternatively, a number of processors can share resources through shared-occupancy of a standard computer bus, each processor serving a single user and thus being logically, if not physically, networked.

(For the purposes of this survey, such internally networked systems were counted as multi-user systems, but separate units offering similar facilities through their own externally-connected local area network were excluded.)

The first generation of that class of multiprocessor systems almost exclusively assigned a single board Z80 processor with 64K-bytes of memory to each user and used a similar board to control access to shared resources. Recently announced systems have offered a variety of processors in such a multiprocessor configur-

ation, with established suppliers of bus-based single and multi-user systems starting to offer additional processor boards as an economical way of increasing performance options.

Multi-user systems, by definition, must be multi-tasking, multiprocessor, or possibly both. Because the single processor of a multi-tasking system is typically more highly engineered than one of a set of multiprocessors would be, its performance could be expected to exceed a competitive multiprocessor architecture when only one user is using a single processor system.

But, as additional users become active, the single processor performance drops off dramatically — not simply because of the demands of those users, but also because of the operating system overheads involved in switching attention between them. Such a system may be able to complete a low-overhead task such as data entry at several terminals quite adequately, but would prove inadequate for simultaneous program compilations, database enquiries or word processing global search and replace operations, which are all computationally intensive tasks.

At the other extreme, a shared-bus multiprocessor system shows no degradation of performance irrespective of what individual users are doing, because each user has his own unshared processor. The only possible contention could be shared resources, such as disk and printer.

A judicious mix of multi-tasking and multiprocessor capabilities is likely to become the most cost-effective method of providing the typical distribution of computing performance required from small to medium multi-user sites, and many suppliers are working towards such advanced architectures.



Laboratories since it attained some commercial recognition, most importantly Versions 6 and 7 of its System 2, System 3 and, recently, System 5, claimed to provide prospects for some longer-term stability.

In the middle of the scale, some software companies have tried to bring several key features of Unix, and of proper multi-user operating systems generally, down into the resource-poor area of 8-bit processors. The most important such system has been Oasis, which, riding on the back of the success of such machines as Altos and Onyx, has played a significant role in the market penetration of multi-user micros.

While Unix incorporates each operator command as a separate command file, Oasis is a fully integrated product with intrinsic functions. (For those familiar with MS-DOS, the difference is like that between COPY which is intrinsic and FORMAT which is a library function.) Among Oasis features are: a text editor and formatter, file and record locking, user accounting, privilege levels and its own Basic language.

There are two competing portable operating systems for the less popular 6809 processor, OS-9 and Uniflex, each of which tries to resemble Unix.

One further portable operating system, BOS, purposefully avoids any resemblance to either major streams as it tries to provide microcomputer access to the predominant commercial programming language Cobol. The UK-developed Business Operating Software (BOS) exists simply to provide a machine-independent software environment to host the same company's Micro-Cobol language, originally developed on the PDP-11 before being ported to the Z80 and, more recently, to the 8086 and MC68000 processors.

With so many companies producing their own CP/M lookalike, multi-user systems, it was hardly surprising that CP/M's authors, Digital Research, got into the act with what it called MP/M. The first version of MP/M will be most remembered as the first major disaster of the micro software industry.

MP/M II has achieved a much more positive response and now competes

strongly with Oasis as market leader in the 8-bit multi-user field. More important, Digital Research has extended MP/M (along with CP/M) into the growing world of Intel's 8086 family of 16-bit processors, where it has been used by many leading hardware developers as their first choice for small multi-user systems.

But Digital Research has also produced Concurrent CP/M as a multi-tasking (but not multi-user) extension of CP/M 86; with the current emphasis on multiwindowed personal computers, Concurrent, rather than the MP/M line, is likely to be the thrust of CP/M's future developments. The almost exclusively Z80 processor-based shared bus manufacturers also concentrated on providing a CP/M-like environment for each user, firstly through proprietary offerings.

A two-man US software company obtained an early IMS-shared-bus system on which it developed TurboDOS, yet another CP/M-compatible product, but one which could also be offered to all suppliers of internally and externally networked Z80-based systems. Although it lacked financial and marketing muscle, TurboDOS has become second only to Unix in its acceptance as a multi-user operating system with a future. It is being used by many manufacturers of low-cost, multi-user and LAN-based systems.

TurboDOS even contains a design feature — claimed to be implemented properly in the recently released Version 1.3 — which supports a second level of networking, thus enabling a number of shared-bus machines to be linked together within a single operating environment. In a shared-bus machine, the main TurboDOS code resides on the bus master processor, with each slave requiring only enough resident operating system code to make calls to the bus master, thus freeing up even more user memory than even the simplistic original CP/M.

TurboDOS is now available in the 16-bit world and should continue its success, particularly as networked personal computers provide an increasingly viable alternative to small multi-user systems.

## APPLICATIONS

ONE of the biggest obstacles to be overcome in making efficient use of a multi-user micro is that most software developed for micros was initially designed with only single-user requirements in mind. Much of that software is now broadly classed as "personal productivity tools" — a classification which clearly eliminates any real design need to consider operation on a multi-user system.

The real software requirements for a workable multi-user system are twofold: to provide terminal-independent access to personal productivity tools, and to provide true multi-user applications such as accounts data entry for which the same data file may be required from several terminals simultaneously.

Such tools usually come with their own configuration program to set them up for various micros on which they can run. The first step to bringing them up on a multi-user system is simply to run the configuration program, entering the specific configuration parameters that apply to that system.

Typical consequences of such a simplistic approach are work processing programs which take over the system's shared printer as though it was their own, thus cutting off access to other users — even users trying to use the same program. A proper multi-user environment requires that all inputs and outputs can be redirected under operating system control to spooler files, with all tools complying with system standards in that respect.

Another problem is the licensing requirements of tool vendors, most of whom still claim the user must have a separate licence for each terminal at which the tool can be used and for each person using it. Such requirements are clearly unenforceable, except by the fact that a poorly installed tool may commandeer system resources in such a way that it cannot be used effectively in a multi-user environment. ▶



# daisywriter®

**The standard by which all other letter quality printers are judged!**

**\*INTERNAL 48K BUFFER MEMORY —**

Now you can forget waiting while your computer feeds your printer. Daisywriter lets you process and print simultaneously, it holds up to 30 pages of text and frees up the processor to do other tasks.

**UNIVERSAL INTERFACE —**

from Apple to Xerox and Commodore through IBM-PC to TRS-80. Daisywriter will connect to any processor with RS232, Centronics, IEEE or current loop interfaces.

**COMPLETE RANGE OF PROTOCOLS —** from

Applesoft to Zardax and Multiplan to Visicalc. Daisywriter will run with virtually any software.

**HIGH SPEED PRINT THROUGHPUT —**

bi-directional printing with high speed logic seeking ability enables Daisywriter to ZIP over white space on the page at up to 200 cps.

**HIGH RELIABILITY —** runs on a linear motor — no belts, pulleys or wheels to wear and require adjustment.

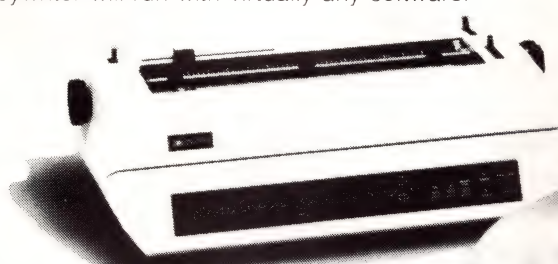
**LOW RUNNING COST —** uses easily loaded daisywheel cassettes and standard IBM typewriter ribbon cartridge.

**GRAPHICS —** full graphics capability.

**INTERNAL SOFTWARE COMMANDS —** more than 75 software commands to give you true proportional spacing and speed up your word processing.

**CUTSHEET AND TRACTOR FEEDERS —** available as options.

**Only \$1986\***



\*Price does not include sales tax

**PSI**  
Incorporated in N.S.W.

**PAPERWORK SYSTEMS INC. (GROUP) PTY. LTD.**

HEAD OFFICE 14th FLOOR, 124 WALKER STREET (PO BOX 351) NORTH SYDNEY NSW 2060

AUSTRALIA TELEPHONE (02) 922 5322 TELEX: AA23981 3 BOWEN CRESCENT

MELBOURNE VICTORIA 3004 AUSTRALIA TELEPHONE (03) 267 7555

Enter S020 on Enquiry Card



# A word on the care and maintenance of the floppy disk.

## Rexel

New technology in office systems has led to new problems. For example how to store flexible disks in such a way as to ensure security, provide easy, organised access, and keep the disks dust-free and protected from the environment.

Rexel Wilson Jones flexible disk trays do all this and more.

Apart from its good looks (the handsome tray suits any office decor, and the unique lid design saves desk space), you'll find the kind of features you've come to expect from Rexel's leading range of quality disk storage systems.

- Two popular capacities for 8" and 5¼" disks.
- Option of lockable or non-lockable trays.
- Moulded from high

impact, anti-static A.B.S. Polystyrene.

- Unique removable scratch-resistant hinged lid.
- Fully integrated lock with two keys.
- Adjustable divider supports (also available separately).
- Built-in label holder.
- Adjustable tabs, with inserts.
- Built-in carry handles.

Available from office and computer supply specialists and wherever quality office systems are sold.



Getting the whole world organised.

Rexel Office Products Australia  
Rhodes, NSW (02) 736 1888

Rexel Office Products Australia  
Melbourne, VIC (03) 329 8966

Rexel Office Products Australia  
Mayne, QLD (07) 52 7866

L.B.A. Stationers  
Spearwood, WA (09) 418 4622

Satex Distributors  
Beverley, SA (08) 268 3088

Penstock Distributors  
Devonport, TAS (004) 24 4611



Some leading software vendors recently have tried to achieve more modest cost increments as the number of users rises.

Controlling such tools in a multi-user environment requires a relatively easy-to-implement feature called "file locking", whereby access to a particular file is denied to all other users until the first user releases it. It is obviously unlikely that two users would want to modify the same word processing document or spreadsheet at the same time, but some rules are required to prevent such contention.

With multi-user transaction entry systems, such as accounting, the requirements are quite different. It is vital that more than one data entry operator should be able to update a particular accounts file at the same time.

The way this is achieved is through record locking, with the application program gaining exclusive access to appropriate records while a transaction is being processed. In typical applications, each transaction must be verified against two or more records from different files, with appropriate fields being updated in each record before any user is given access to any of them.

To date, the development philosophy for such true multi-user applications has been different from that for personal productivity tools, with multi-user applications being developed for specific purposes, record locking being the responsibility of the application program, with some support facilities provided in the operating system. The potential exceptions are database update and enquiry programs which may sensibly be designed for a multi-user environment from day one. A range of approaches in this area is evident from products which provide facilities for multi-user applications development to those which actually allow multi-user update and enquiry.

True multi-user software generally sells for thousands of dollars rather than the hundreds applying to most personal productivity tools.

## FUTURE DIRECTIONS

THE demise of general-purpose, multi-user micros in the face of effectively networked personal computers may be on the horizon, but the multi-user wave has a deal of growth left in it.

Beyond the efforts of existing suppliers, all of whom are trying to expand their markets, the growth will be further compounded by the entry of some super-performance systems and some new big-gun suppliers. Although its major commitment is to its Personal Computer family and networking via the horrendous overheads of its mainframe-centred SNA, even IBM has joined the fray with the recent announcement of its little-heralded 9002.

More important, some major players in the pressurised mini-computer market are rushing their previously successful architectures down to micro level. Data General and Honeywell last year announced similar ranges of micros based on their 16-bit processors, Nova and DPS-6 respectively.

Mini market leader DEC, as well as using its PDP-II compatible LSI-II processor in several micros, has just announced the long-anticipated micro version of its highly successful 32-bit range, calling the new offering MicroVax. Many smaller, but some increasingly significant, players are still betting on the relative ease of entry into multi-user micros, leaving space for alternative products which will retain competitiveness.

At one extreme, Canberra-based Ortex is getting more power out of a multi-processor system based on the advanced Intel 80286 chip than anyone is likely to use in the foreseeable future.

But the future of multi-user micros depends on more than hardware; software and market education are vital factors, too. While TurboDOS will undoubtedly grow from strength

to strength, especially as it is extended to additional 16- and 32-bit processors, Unix will be a force in its own right.

The relatively recent announcement that the long-term standard commercial version will be Unix System Five will provide considerable incentive for would-be multi-user suppliers to hitch their wagons to that star. Just to back it up, System Five is being ported to nearly all the major 32-bit processor chips through agreements between Unix developers American Bell and the various chip manufacturers — making it an attractive proposition for would-be system builders who want to incorporate any of those processors.

With so much potential supplier pressure, the multi-user micro market must be close to a period of rapid growth or a shake-out of its own. The prejudices of someone charged with the horrendous task of compiling information on every multi-user micro on the Australian market notwithstanding, if that shake-out does not come sooner, it certainly must come later.

With the notable exception of Lionel Singer's Wicat, there has so far been little effort made to inform reluctant prospective users that multi-user micros offer some excellent opportunities for increasing business productivity, and that they are more than cost-effective against other multi-user architectures (small minis and networks). But the number of suppliers who have been selective in their chosen niche means that the potential market acceptance of multi-user micros is quite high, the task remaining being to reach a greater number of prospects.

In the long term, there is little doubt that advances in personal computer design and networking will do to multi-user micros what they are now doing to low-end minis, with the design lessons learned on the way past giving opportunity for at least some vendors to transfer their skills to the shared (file, print and communications) servers needed on such networks.



## MULTI-USER MICROCOMPUTERS

THE vast range of multi-user microcomputers on the market is split up into convenient groups based on the operating systems and processor chips used, from mainly MC68000 chip Unix machines down to single Z80 powered units with proprietary operating systems. Two major classes of systems, Unix-based and shared-bus, compete head-to-head against much of the traditional realm of minicomputers.

### Unix-based systems

Clearly, at the top of the list as the most powerful microprocessor-based system with any real sales history is the **Charles River Universe** range featuring dual MC68000 processors with onboard cache memory and a 32-bit bus data path to main memory. While keeping a toehold in the middle of the multi-user market with its lowest configurations, fully blown Universes compete head-to-head with super micros, albeit at a much lower cost.

Of the more conventionally engineered 68000 based-systems, possibly the most readily recognised in Australia is **Wicat**. Lionel Singer, the almost legendary marketing man who made Prime computers so much more successful in Australia than anywhere else in the world, has achieved an even greater local success ratio with his new baby.

The one thing Wicat buyers look for and get, which sets the computer apart from its competitors, is professional sales support, making its purchase problem-free. Wicat promotes its own proprietary operating system ahead of Unix, offers a similar choice of proprietary or industry-standard buses, and can supply the Wise authoring software — a pillar of the Wicat World Institute of Computer Aided Teaching which has created little market response locally.

**Plexus**, to which Wicat was com-

pared when the latter was first noticed in the US, has arrived much later in Australia, but is generally regarded as a good implementation of this architecture.

**NCR's Tower** is an interesting entry from one of the surviving mainframe manufacturers who refuse to toe the IBM line, the company being so satisfied by the architecture that it has released a slightly reworked, Cobol-oriented version to replace its established low-end minicomputers. The same general architecture has been a favorite with Australian designers since the mid-1982 release of Bill Hollier's **Unison**, some 18 months after that design failed in its first attempt to secure funding.

Not surprisingly, the then three-year-old design of what had just become Email's Unison came a clear last in extensive bench tests of competitive machines conducted late last year, but the reworking of a couple of key components has reportedly elevated Unison to second place on that table, assuming all the others have stood still in the meantime.

The fastest of these machines was the cannily named **Unity** from Sydney-based Digital Electronics, a company which had already built quite a reputation for its repackaging of DEC minicomputers.

**CMAD's CM-2** had to meet the additional requirement of providing downward compatibility from that company's range of Melbourne-designed minicomputers.

Even a Queensland firm with the unlikely name **Software Australia** has got into the act with its own design for a similar system.

The company which has gone closest to making the big time through multi-user micros has been that one-time darling of US stock markets, **Altos**. It has progressed from Z80-based multi-user systems

through 8086 to 68000, starting with Oasis as an operating system, for a while adding MP/M, but now concentrating on Microsoft's Unix derivative Xenix.

**Onyx** followed a similar path, relatively more visible in Australia because of more aggressive local distribution.

One stayer of the early microcomputer market, and a company with a reputation for quality, **Cromemco** has moved its proprietary Unix-like Cromix from Z80 multi-user systems to ones based on a dual processor board, retaining the Z80 for application compatibility alongside the more powerful 68000.

**Tandy**, a leader in the single-user computing, has also chosen the 68000-Xenix combination for its dabble in the multi-user world, the mundanely named TRS-80 Model 16.

In the value-for-money stakes, **Sage** is being rated increasingly highly as a 68000 powered host for many operating systems including multi-user Unix. Unix's cross processor availability is illustrated by the **Zilog System 8000** flagship for that company's prematurely announced 16-bit Z8000 processor family using another Unix-based system called Zeus.

While most of the 8086-based multi-user systems have stayed with CP/M derivatives for multi-user, those from **Seiko** and **Zenetec** both offer Unix versions, Umdol and Xenix respectively.

The only other multi-user micro for which a capacity of well over 20 users is claimed is **Alpha Micro**, a company which has been known for some time, particularly for its bigger and bigger product announcements.

### Shared-bus systems

Most of these systems have a proprietary operating system which looks like CP/M to the user and to application programs, but an increasing number are using Turbo-DOS, a system which meets those same performance objectives, but which is generally available for shared bus systems. The first such system to reach the Australian market was **Micromation** which



quickly carved a niche as a preferred supplier of CP/M compatibility for the Victorian government and, even more important, its Education Department.

Other important early overseas entries were **IMS**, the original development system for TurboDOS, and **Discovery**. Since then, considerable prominence has been given to Australian companies selecting this relatively economical entry to hardware manufacturing.

**SME Systems** used its S-100 bus board expertise to build up a system somewhat similar to Discovery. Gippsland, Victoria, company **Com-processing** produced Australis which provided the user with a choice or combination of shared-bus architecture with conventional networking, all under the same operating system.

**Macpro** launched a well-packaged STD bus machine based on Pulsar's Little Big Board, a product which has been readily accepted in the commercial marketplace, compared with the tendency of others in its class to appeal mainly to government and education.

**Dewhurst's Data Base Engine** is a much more heavily engineered version of the same basic concept, for which entry costs are much higher than others listed, with performance in database work similarly enhanced.

Big name overseas entries into this field are **Xerox's 820-II** and **Mitsui's Sord**, others of which share a processor.

An interesting variant is contained in a recent revision of **Zeus** (the computer, not the operating system), which is only available in this country as a host to vertical market software for hotels. The slave cards in Zeus now feature four Z80 processors and four corresponding banks of 64K-bytes of RAM a card.

A newly arrived player in the local game is **Colex** with an affordably plain STD bus-based system which is made more notable by former Australian Apple distributor Rudi Hoess's new position as president of Colex in Hong Kong.

There is no real reason why multi-processor architecture should be

confined to the straight-forward Z80-based pattern, as **Northern Telecom** has shown with a system based on multiples of the little-noticed Intel 8085 chip.

### Specialised proprietary systems

Among the following list of powerful systems there are those that have been brought down from mainland, those that were developed out of standard chips without their designers ever thinking of them as micros, some that just did it their own way out of habit, and a couple which could not be otherwise classified.

Leading mini computer supplier **Digital Equipment Corporation** (DEC) has finally got serious about bringing its technology down to the micro level — a job which, if it had been started five years earlier, would have produced a totally different micro marketplace from the one we have today, much to the frustration of DEC's shareholders.

**MicroPDP** has brought the long proven PDP-11 architecture into the micro market, extending beyond the functionality offered earlier by DEC's Rainbow 350 personal computer, with the recently announced **Micro-VAX** certain to have a much greater impact as it spreads the still advancing VAX supermini right down to the micro level.

DEC has long offered the LSI-11 chip set to original equipment manufacturers, giving them the opportunity to develop PDP-11 compatible microcomputers such as the more recent of Melbourne manufacturer **Webster's Spectrum** models.

**Data General** has similarly incorporated its MicroNova chips into its new "Desktop Generation" which offers a new hunting ground for the many local DG OEMs to get another lease of life from their software.

**Honeywell** has also produced a line of micros with a similar relationship to its DPS-6 minis, paralleling even Data General's numbering system.

**Datapoint** was a pioneer of desktop minis, distributed processing and, more recently, local area

networks, so, without discarding any of its own successful strategy, it has found itself by default building microcomputers without discarding any of its established system facilities.

Two Queensland manufacturers, **Hartley** and **Eracom**, have established themselves with unique software and are now building their systems as conventional micros without discarding any functionality.

Electronic technology leaders **Hewlett-Packard** and **Texas Instruments** both utilised their own proprietary 16-bit processors to produce their first multi-user micros, HP250 with a unique but typically HP environment and the TI offering based heavily on the UCSD-P system which was developed to support Pascal.

**Molecular Computer** has found a distinctive architecture, providing multi-user access to 16-bit processing and other system resources, all available from any of the networked Z80-based terminal processors in an installation.

Canberra-based **Ortex** has taken multi-user micro architecture close to its limit with a range of 80186 and 80286-based systems which may involve a multiplicity of processors, each of which can be shared between a moderate number of users.

### MP/M 86-based systems

The excessive American hype built up around the IBM PC has turned everything based on Intel's 8086 processor family into gold, even producing half a dozen comparable multi-user systems of similar architecture almost overnight.

The first indication that MP/M 86 had to be taken seriously as an operating system came when **Labtam**, the Melbourne company building some of the most advanced 8086-based systems in the world, announced its claim to being the first Australian company to port that system.

Another technologically advanced Australian company, AED is using MP/M 86 for its **Universe Supercomputer**, AED having already developed a simple task-►



CATEGORY	PRODUCT	SUPPLIER	TELEPHONE
CP/M 68K	Heurikon	VSI Electronics	(02) 439 8622
MUCCP/M 86	ICL Model 16, 36	ICL	(02) 92 2011
Cromix	Adapted AE8C	Adaptive Electronics	(03) 267 6800
Eight bit	Cado Cat	Remington	(02) 269 0925
Eight bit	Chieftain	Prest Computers	(02) 653 1557
Eight bit	Compucorp	Namrac	(03) 890 1770
Eight bit	Durango	Rockend	(02) 417 1751
Eight bit	ICL Model 26, 35	ICL	(02) 922 0111
Eight bit	Little Big Board	Pulsar	(03) 330 2555
Eight bit	North Star Horizon	ADE	(03) 544 3444
Eight bit	Paris Radio	Paris Radio	(02) 344 9111
Eight bit	Pennywise	Pennywise Periph	(03) 82 2389
Eight bit	Sanyo MBC 1000	Sanyo	(02) 929 4644
Eight bit	System One	System One	(02) 267 2565
Eight bit	Televideo	Data Peripherals	(02) 888 5733
Eight bit	Vector 5000	Dicker Data	(02) 525 2122
MP/M 86	AEO Supercomputer	AEO	(02) 636 7677
MP/M 86	Columbia	President	(02) 476 2700
MP/M 86	KDS 7860	O'Reilly	(02) 896 2799
MP/M 86	Kokusai	O'Reilly	(02) 896 2799
MP/M 86	Labtam	Labtam	(03) 587 1444
MP/M 86	Micromax	AWA	(02) 922 3300
MP/M 86	Tecmar	Hahn & Kolb	(03) 561 5211
Proprietary	Datapoint	Datapoint	(02) 922 3100
Proprietary	Desktop Gen	Data General	(03) 831 3311
Proprietary	Era	Eracom	(075) 56 0311
Proprietary	Hartley 3900	Hartley	(07) 377 0509
Proprietary	Honeywell	Honeywell	(02) 932 9660
Proprietary	HP250	Hewlett-Packard	(03) 895 2895
Proprietary	MicroPDP	DEC	(02) 412 5252
Proprietary	MicroVAX	DEC	(02) 412 5252
Proprietary	Molecular	Asia/Pacific	(02) 929 8455
Proprietary	North Star Horizon	ADE	(03) 544 3444
Proprietary	Proteus	Progeni Systems	(03) 277 2699
Proprietary	Spectrum	Webster	(03) 729 8444
Proprietary	Texas Instruments	Texas Instruments	(02) 887 1122
Shared bus	Australis	Comprocessing	(051) 44 3399
Shared bus	Colex	Colex	(02) 699 7221
Shared bus	Dewhurst DBE	Dewhurst	(03) 267 5877
Shared bus	Discovery	Archives	(03) 699 8377
Shared bus	IMS	SI Micro	(02) 922 3977
Shared bus	Macpro	Macpro	(03) 699 3100
Shared bus	Micromation	Microprocessor Appl	(03) 890 0277
Shared bus	Northern Telecom	Data 100	(03) 267 3544
Shared bus	Sord	Mitsui	(02) 451 7711
Shared bus	Unicorn	SME Systems	(03) 874 3666
Shared bus	Xerox 820-II	Rank Xerox	(02) 449 0449
Shared bus	Zeus	Micro Hotel Sys	(02) 467 2000
Unix	Alpha Micro	Concise Data	(02) 498 8399
Unix	Altos	Pace	(02) 411 7888
Unix	Charles River	Intelec	(03) 233 1844
Unix	CM2	CMAD	(02) 329 8422
Unix	Cromemco	Insystems	(03) 690 2899
Unix	Ortex	Net-286	(062) 80 5283
Unix	Plexus	TCG	(02) 699 8300
Unix	Sage	Rakon	(03) 720 3188
Unix	Seiko 8600	Transnational	(02) 439 6533
Unix	Software Aust	Software Aust	(07) 371 7900
Unix	TRS-80 Model 16	Tandy	(02) 675 1222
Unix	Unify	Digital Electr	(02) 449 4400
Unix	Unison	Email	(03) 728 1888
Unix	Wicat	Wicat	(02) 438 2911
Unix	Zenotec	10 Peripherals	(02) 437 7111
Unix	Zilog 8000	Z Systems	(07) 369 3396

swapping system which was a forerunner of Concurrent CP/M, another operating system from the same stable.

Imported products already supporting MP/M 86 include **Micromax** from AWA, **Tecmar** and a Japanese company, Kokusai's **KDS 7860**, all of which are handled by their respective local distributors.

The most important of the IBM PC clones in Australia, **Columbia**, has had several enhancements included with it since its launch, plus a multi-user capability.

## Eight-bit systems

Although Z80 and 6502 eight-bit processors are popular in stand-alone personal computers, that popularity is not so great in multi-user situations.

While the Z80 is used in some systems, it does not dominate, while two otherwise forgotten processors, Intel's 8085 and Motorola's 6809, come into play. Many companies which pioneered the multi-user market with 8-bit systems have moved on to larger configurations, but the odd new 8-bit multi-user system still surfaces to maintain the numbers.

**ICL** managed to convince some industry statisticians that its 8085-based systems were going to carve up the market in the past year but, while they are still trying, their sales figures are closer to market reality than were their earlier optimistic predictions.

Two 8085s were incorporated in **Durango**, one of the earlier multi-user micros which had the unique architecture of tacking the computer and its screen on to the side of a powerful multi-font printer, ideal for sophisticated reporting systems.

A third 8085 system, **Cado Cat III**, has been marketed by the considerably better-known Remington Office Machines.

**Pulsar's Little Big Board**, the second highest-selling Australian computer after Microbee, has become the heart of a very economical multi-user system, especially when combined with Pulsar's own 256K-byte RAM card, also for the STD bus and the latest high-capacity floppy



# MICROMAIL

Australia's No. 1 Microcomputer Mail Order Club.

**SPECIAL INTRODUCTORY OFFER: FREE MEMBERSHIP WORTH \$30 WITH PURCHASE OF \$100 OR MORE ON INITIAL ORDER.** (see below for membership benefits.)

## SPECIAL OFFER OF THE MONTH

### Part I

For IBM PC

TEAC Double Sided Floppy Disk Drive	Micromail Exclusive Rec. Ret. Price
--	--

Micromail \$495
--------------------

## SPECIAL OFF OF THE MONTH

### Part II

For IBM PC

Lotus 1-2-3
-------------

Rec. Ret. Price \$950
--------------------------

Micromail \$679
--------------------

### commodore

Prices inc. sales tax	RRP	Micromail
Commodore 64	\$499.00	\$399.00
1541 Disk Drive	499.00	399.00
1526 Printer	499.00	439.00
1701 Color monitor	499.00	449.00
Sx-64 Portable	1499.00	1399.00
Parallel interface	119.00	106.95
Koala Pad	149.95	134.95
Bank Street Writer	83.95	75.95
Multiplan	149.00	129.00
Easy Script	100.00	85.95
Superbase 64	180.00	149.00
General Ledger	109.00	99.95
Stock Control	109.00	99.95
Home Accountant	105.00	91.95
Master Type	64.95	57.50
Business Accts.	150.00	138.00

and more!

### SPECTRAVIDEO

	RRP	Micromail
Runs CP/M and MSX SV-328	699.00	599.00
328. Super expander, control card, disk 1	1599.00	1449.00
80 column card	299.00	269.95
Centronics int	199.00	165.95
RS232 int	250.00	212.00

and more!

CP/M software	RRP	Micromail
Calstar	220.00	192.00
Infostar	666.00	559.00
Wordstar	595.00	495.00
Mailmerge	377.00	319.00
Supersort I	377.00	319.00
Supersort II	286.00	266.00
Wordstar Profess.	795.00	695.00
DBase II	825.00	689.00
Spellbinder	695.00	495.00
Supercalc 2	395.00	335.00
The Word Plus	249.00	189.00
Friday	360.00	319.00
Zork I, II	69.95	55.95
Punctuation/style	239.00	179.00

and more!

Printers	RRP	Micromail
Prices include sales tax.		
Juki 6100 Daisywheel	995.00	895
SP2000 Daisywheel	995.00	795.00
C-Itoh 8510 par	1340.00	1095.00
C-Itoh 8510 ser	1539.00	1249.00
C-Itoh 1550 par	1635.00	1350.00
C-Itoh 1550 ser	1840.00	1499.00
Star Gemini 10x	595.00	495.00
Star Gemini 15X	955.00	795.00
Epson FX-80 copy	795.00	579.00
Pony Thermal	199.00	159.00

and more!

### apple

Hardware (excluding sales tax)	RRP	Micromail
CED card	\$135.00	\$115.00
Digitek Printmaster	202.00	174.00
Micro Fazer	390.00	349.00
Vision 80	295.00	239.00
Vision 80/128K	799.00	649.00
Davang 5Mb Drive	2880.00	2399.00
Accelerator Board	825.00	749.00
Digitek RS232 ser.	188.00	159.00
Microsoft Z-80	545.00	460.00
Superclock II	278.00	239.00
Microbuffer 16K	422.00	369.00
Apple Fan	120.00	105.00
Software (including sales tax)		
Calstar	220.00	189.00
Cardbox	328.00	279.00
DB Master	530.00	449.00
Home Accountant	105.00	89.95
Infostar	666.00	559.00
Supersort I	377.00	319.00
Time Manager	248.00	209.00
PFS	175.00	149.00
Visicalc Adv. Version	495.00	430.00
Visidex, Visifile	428.00	359.00
Visischedule	528.00	449.00
General Manager	330.00	295.00
Visiplot	343.00	289.00
Bank Street Writer	98.95	83.95
Wordstar Professional	795.00	695.00
Mailmerge	377.00	319.00
Zardax	324.00	275.00
65 Software	call	call
Programming Aids	136.00	115.00
Typing Tutor	42.95	36.50
Master Type	64.95	54.95
Education, Languages, Games	Call and Save	

### ATARI

Prices include sales tax	RRP	Micromail
600XL	399.00	379.00
800XL	599.00	569.00
1050 Disk Drive	699.00	659.00

and more!

### Manufacturer's full warranty on all products!

Monitors	RRP	Micromail
Teco green screen	249.00	199.00
Teco amber screen	275.00	220.00
Color monitor	Call and save!	
Floppy Discs	RRP	Micromail
Le Floppie (box of 10)	49.95	37.95
Single side dble/density	80.00	65.95

and more!

Micromail offers thorough training courses on  
DBase II, Visi On, Spellbinder, Basic.  
Others on request.

### IBM

Software includes sales tax.

	RRP	Micromail
Multimate	595.00	495.00
VisiOn Applications Mgr	165.00	150.00
VisiOn Calc	630.00	555.00
VisiOn Word	595.00	519.00
VisiOn Graph	395.00	339.00
VisiOn Pack A	1099.00	950.00
VisiOn Pack B	1499.00	1350.00
Cardbox	328.00	279.00
DB Master	753.00	669.00
Infostar	666.00	559.00
Home Accountant Plus	198.00	175.00
Versaform	570.00	495.00
Stretchcalc	149.00	129.00
Visicalc (256K)	428.00	359.00
DBase II	825.00	685.00
Visidex	428.00	359.00
Visifile	428.00	359.00
Visischedule	528.00	469.00
Visitrend/Plot	528.00	469.00
Wordstar	595.00	495.00
Mailmerge	377.00	319.00
Wordstar Professional	895.00	769.00
Master Type	68.95	58.95
PC Tutor	83.95	75.95
Spellbinder	695.00	495.00
The Word Plus	249.00	189.00
Modem-86	149.00	119.00
Friday	360.00	320.00
Supercalc 3	445.00	369.00
CBasic-86	509.95	489.00
CP/M-86	99.00	89.00
LOGO	289.97	239.00

Hardware excludes sales tax.

	RRP	Micromail
PC Pedestal	138.00	129.00
VisiOn Mouse	375.00	335.00
Davong 64K exp. RAM	359.00	319.00
64K Upgrade (9)	97.50	85.95
Quadboard 64K par/ser	550.00	489.00
Quadboard 256K par/ser	825.00	730.00
Microfazer 64K par	390.00	345.00
Microfazer 64K ser	445.00	395.00
Persyst 64K, cal/cik, serial port	650.00	569.00
Persyst 128K, cal/cik, serial port	785.00	689.00
Persyst 192K, cal/cik, serial port	935.00	819.00
Persyst 256K, cal/cik, serial port	1075.00	945.00
Persyst 384K, cal/cik, serial port	1530.00	1350.00
Persyst 512K, cal/cik, serial port	1820.00	1625.00
Field Expansion Kit parallel printer port	89.95	78.95
Kraft Joystick	89.95	78.95

and more!

FOR ALL PRODUCTS NOT LISTED CALL (02) 449 5600

Visit showroom at  
4A Merrivale Rd,  
Pymble, NSW. Open Saturday.

Order by phone,  
Sydney (02) 449 5600  
Australia-wide (008) 23 0200  
(Toll Free) 24-hour service  
Bankcard and Mastercard welcome.

Or send cheque or  
Money order to:  
MICROMAIL, PO Box 454,  
4A Merrivale Road,  
Pymble, NSW 2073.

**Despatch** — Guaranteed in five working days. Shipping and handling charges:  
Sydney: \$5.00. Anywhere in Australia maximum \$10.00.  
Courier delivery.

**Prices** — Subject to change without notice.

Atari is a trademark of Atari Inc. Apple is a trademark of Apple Computer Corp. IBM is a trademark of International Business Machines.

Members receive: Discount vouchers  
for future purchases. Free cassette or  
diskette. Microgram bi-monthly  
publication.



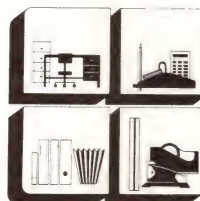
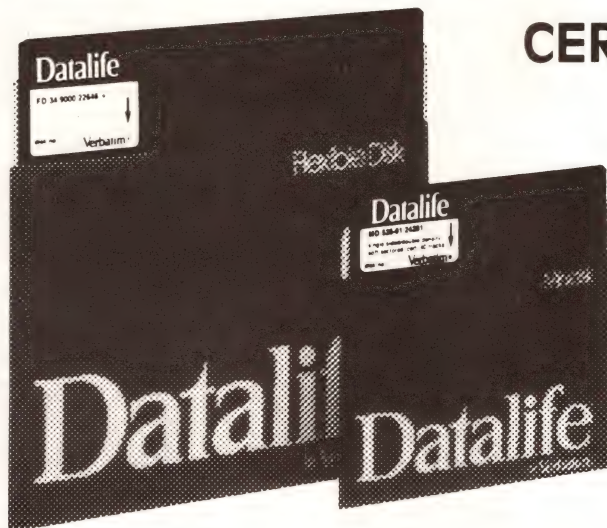
## PROBLEM

## ARE YOUR FLOPPY DISKS LETTING YOU DOWN?

### SOLUTION:

# Verbatim® Datalife™

## CERTIFIED 100% ERROR FREE 5 YEAR WARRANTY



## BARRIE'S

OFFICE SUPPLIES PTY. LTD.  
(Incorporating COPYRITE INDUSTRIES PTY. LTD.)  
203 Adderley St, West Melbourne 3003.  
Telephone: (03) 329 6500

# AUSTRALIS

## MICROCOMPUTERS

A DIVISION OF MEDAIR PTY. LTD.  
AUSTRALIAN DESIGNED  
AND MANUFACTURED

- ★ Distributor of the AUSTRALIS MICROCOMPUTER.
- ★ NETWORKED Microcomputer systems (local and remote).
- ★ POINT-OF-SALE systems.
  - Cash Registers CASIO & HUGIN, Bar Code entry.
  - In excess of 15,000 PLU's.
  - 16 locations & 32 registers may be remote.
  - Fully integrated POS, Inventory, AR, AP, GL, Suitable for HOTELS, NEWSAGENTS, HARDWARE, PHARMACY, RESTAURANT, FAST FOOD OUTLETS.
- ★ INVENTORY systems.
- ★ BUSINESS SOFTWARE (AR, AP, GL, Invoicing, Delivery).
- ★ TELEX EDITOR & Communications Software links to USA, UK, Singapore, Holland, Hong Kong.
- ★ COMPANY SOFTWARE (AR, AP, General Ledger with Detailed Projects Costing & Expense Budget Reporting).
- ★ MULTIPLE COMPANY GENERAL LEDGER reports on branches (Installed at World Services & Construction).

- ★ Exclusive agents for AGRIDAY (VETIAC, MEGAVET) VETERINARY software, installed Melbourne University.
- ★ 100% Hardware and Software (including data) support.
- ★ 2MB Single User to 160MB 32 User (multi terminal single tasking) Systems, Multiple Printers, Multi-Processor.
- ★ CLIENT ACCOUNTING SYSTEMS with Professional Time Reporting, covering Companies, Partnerships, Livestock, Public Schools, etc.
- ★ AIRCRAFT-BASED Remote Maintenance.



**DEALER ENQUIRIES WELCOME**

**MEDAIR PTY. LTD.**

PO Box 196, BERWICK, Vic 3806.  
199 High Street, BERWICK, Vic 3806.  
Telephone: (03) 707 2386.





The Sage's reputation is based on its compact size and good performance.



The Fortune 32:16 is the glamor multi-user system intended for the office.

disk drives. Pulsar has just been added to the list of preferred suppliers to Victorian schools in place of earlier CP/M systems.

The **Australis** system was designed to support local and remote networks as well as multi-user operation using Turbo-DOS. The system is based on Z80 processors with up to eight users supported in the base configuration.

The system has several features designed to improve performance including buffer management, read-after-write verification and print spooling.

One international pioneer of

microcomputing, **North Star**, has brought its original Horizon computer up to multi-user capability in a similar way to other S-100 bus suppliers such as Cromemco. But North Star's subsequent emphasis on its networked Advantage personal computer has left Horizon much less visible in the market than it was in the early days.

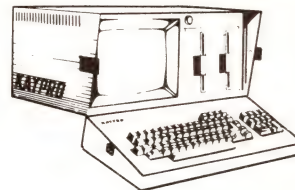
An interesting local development based on the Z80 has come out of the Sydney company **System One**, which has used a single processor to drive a five-user system running its accounting software at all terminals. This was achieved by writing a specialised small operating system simply to handle the minimal demands of the selected applications, as well as coding the actual applications in Assembler with calls to the operating system. The System One software has also been used to make the **Sanyo MBC** computer function as the multi-user system it is not supposed to be, simply by plugging extra terminals into its serial ports.

After its initial move from terminals to networked personal computers, **TeleVideo** has recently announced a small multi-user extension to its present range — a design which is an outgrowth of its personal computers.

**Compucorp**, one of the earlier Z80-based multi-user systems brought into Australia, offered a range of Winchester disk capacities.

Of the 6809 systems, **Pennywise Peripherals** is certainly the best known, having obtained the only source licence outside the US for the purportedly portable Uniflex operating system. Uniflex, which has some resemblance to Unix and is portable from 6809 to 68000, is an outgrowth of the earlier Flex single-user system. An alternative portable operating system for multi-user 6809 systems, OS-9 is used by local developer Paris Radio, as well as in the imported Chieftain.

While 6809s may not be visible among general-purpose micros, they are frequently used in instrumentation and industrial applications, such as **Fairlight's** world leading CMI computerised music system.



## MS-DOS FOR KAYPRO!! IBM-PC DISK COMPATIBLE

We now have available 8088 Boards with 256K for the Kaypro to allow it to read IBM-PC disks and run non-graphic IBM-PC software!!

Package includes MS-DOS, CP/M 86 and IBM-PC filter program to eliminate or interpret non-executable IBM-PC graphics.

Co-power 88 \$950 plus sales tax.

## APPLE II USERS 8" DISK DRIVES!!!

1.2Mb per drive

DOS 3.3, CP/M and PASCAL cased drives, power supply cable and controller. Patches for each operating system included.

\$1800 Plus Sales Tax.

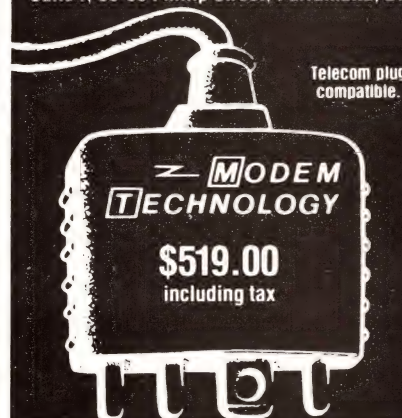
## MICRO EDP & HARDWARE

9A-1 Leura Ave, Claremont  
Western Australia 6010  
Telephone: (09) 384 5511

Enter S030 on Enquiry Card

## universal data MODEM

For commercial and personal computer users.  
Videotex and 300 BPS switchable plus U.S. frequencies. Auto answer/disconnect. Auto dial.  
\*Free membership of the Australian Beginning.  
Suite 1, 55-65 Phillip Street, Parramatta, 2150.



Telecom plug compatible.

## MODEM TECHNOLOGY SALES

N.S.W. Alex Rosser (02) 449 8233  
VIC. Ann Uldridge (03) 63 3352  
A.C.T. Milt Cottey (062) 58 8822  
BRIS. Geoff Vandenberg (07) 57 9700

Enter S031 on Enquiry Card



## UNIVERSE 2

**AED**  
2 Stoddart Street,  
Prospect 2149.  
(02) 7677.

A MAJOR difficulty in designing multi-user microcomputers is maintaining a reasonable level of performance when the maximum number of terminals are employed. One solution is to provide separate processors for each user, effectively the same as networking a series of microcomputers. An alternative is to reduce all system overheads to the absolute minimum, a solution adopted by AED Computers Pty Ltd in its Universe series of multi-user microcomputers.

AED was established in 1979 by two Australian engineers to manufacture high-quality S100 microcomputer systems. The company came to prominence in Australia and overseas with the development of the Multiple Program Selection (MPS) system, an operating system shell that allowed a user to switch between application programs with a minimum of fuss and wasted time.

Wayne Wilson of AED says the concepts embodied in MPS were adopted by Digital Research in devel-

oping Concurrent CP/M 86, now the fastest-selling operating system for the IBM PC.

AED's latest development is the Universe System 2, a multi-user microcomputer that can handle up to 32 users. The Universe 2 uses dual 8085/8088 processors, an S100 bus with 20 slots, and an intelligent buffered file I/O processor that can handle both floppy and hard disks. Hard disk capacities range up to 70M-bytes ex-stock, with a 300M-byte drive possible.

Communication with the outside world is handled by two Centronics parallel ports and three serial ports, all described as "intelligent buffered ports", with the terminals for additional users handled by 8-port S100 boards.

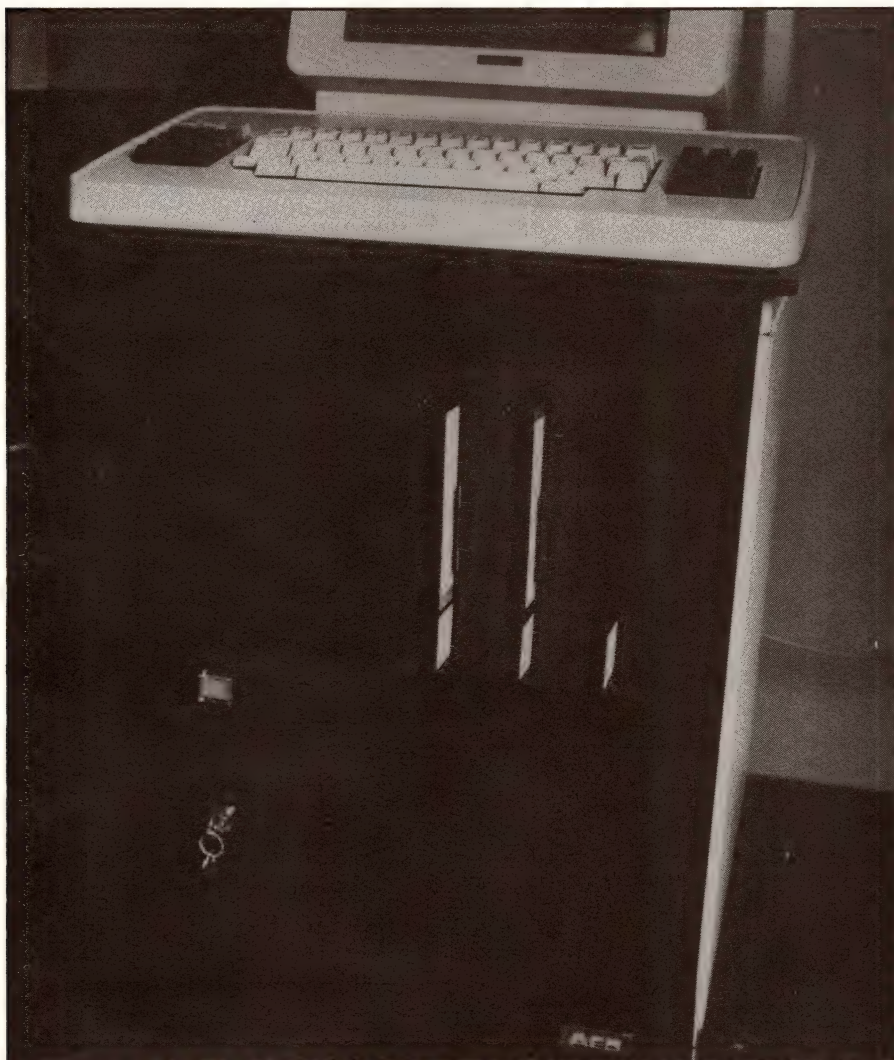
The Universe 2 is housed in a glass and metal cabinet, about 0.5m deep and wide, and 1m high. Two of the side panels are key-locked, but can be removed for servicing, and the on/off switch is secured by another key. To round off the package, AED offers a range of terminals, including a customised word processing and MPS terminal designed for the Universe 2.

Universe 2 computers can be networked, allowing several multi-user systems to share peripherals such as modems, printers and hard disk drives.

AED emphasises its devotion to high-quality hardware by using only high-speed static RAM and 8in disk drives, claiming that the popular 5¼in drives and cheap dynamic RAM reduces the reliability and efficiency of any system, including its own.

High-speed multi-user operation on the Universe 2 is determined by three factors: a 10MHz clock speed, interrupt-driven terminals, and high-speed disk access. The processor speed is the highest that the 8088 chip is run in a production machine, and makes high-speed memory mandatory. When the 8088 is replaced by an optional 8086, this speed helps to increase throughput by 40 per cent for users running only 16-bit software.

Most multi-user microcomputers handle several users/terminals by



AED Universe 2 running MP/M 8-16.



either allocating each terminal, user or task a fixed slice of processor time, or by polling each terminal in sequence to see if it requires use of the processor. As the number of terminals increases, the time spent by the processor just determining which terminal/user/task requires attention becomes a significant portion of total processor usage. This processor overhead can be alleviated by installing a second processor just to handle polling, for example, but this solution both increases costs and causes other difficulties.

AED has partly solved the processor overhead problem by making each terminal interrupt driven. That is, a terminal is ignored by the processor until it calls for attention. The net effect is to reduce the overhead to an insignificant level, even when the maximum number of 32 terminals is installed.

Another source of delay in a multi-user environment is in tasks/terminals/users waiting for disk access. AED has tried to reduce this delay by using extremely fast DMA disk accesses. The end result is that WordStar and an 18K-byte text file can be loaded in less than one second. A disk-intensive task running simultaneously slows down a second task to about the same speed normally found on single-user microcomputers.

The software key to the Universe 2 multi-user system is MP/M 8-16, a version of Digital Research's MP/M 86 operating system developed by Gifford Engineering in the US and only available in Australia through AED. This system allows 8-bit and 16-bit software to be run by different terminals simultaneously, and automatically determines if the software is not 16-bit.

MP/M 8-16 includes all the features of standard MP/M 86, as well as several enhancements by Gifford, including a type-ahead buffer, password control of files and devices, and a RAM disk. AED has added still more enhancements, including networking, system usage log, non-destructive memory testing running in background mode, printer status utility and dynamic allocation of memory.

Where the Universe 2 falls down is

in the provision of multi-user software. Although MP/M 8-16 is designed for multi-user access, including record and file locking facilities, priority queuing for devices, and priority allocation for the running of competing tasks, it depends on the programmer incorporating the use of such features within the application programs — it only keeps users apart, but does not stop them from playing with each other's files.

AED prides itself on being a CP/M house, on providing a proven operating system on which applications programmers can overlay data management systems, word processing systems, accounting systems, or any other software designed for a multi-user environment. But it does not see itself as a distributor of such software and expects the end-user to buy this as required.

This is a major problem, since MP/M 86 has not attracted a great deal of attention from applications programmers, and only a few multi-user packages incorporating features required for multi-user use are available, such as MDBS. The future will hold better things in store for Digital Research OEMs as the battle with Microsoft's MS-DOS draws to a conclusion, but the end-user will have to wait.

And waiting is something that a user can afford to do with the Universe 2. The S100 bus structure means that this computer will never be out of date, since new processing features can be incorporated into the system through a simple board replacement. AED claims that one system has been upgraded eight times since it was first bought 4½ years ago, and its user is enthusiastic about its potential for continuous upgrading.

AED has sold almost 500 Universe microcomputers, and has just completed supplying more than 100 to an overseas buyer. The company has plans to possibly transport Unix to the Universe, and can provide a M68000 processor as an option.

AED is strong proof that Australian computer companies can survive if they have a good product, can read the marketplace, and are capable of doing original design and development work.

# \$500

## 'INFORMATION BUSINESS MANAGER'

COMPLETE ACCOUNTING PACKAGE FOR ALL CPM/CPM86 MICROS

THIS AUSTRALIAN DEVELOPED PACKAGE INCLUDES:

- ★ Accounts Payable
- ★ Stock Control
- ★ General Ledger
- ★ Accounts Receivable
- ★ Invoicing

ALL FULLY INTEGRATED COMPREHENSIVE MANUAL

**DEALER ENQUIRIES WELCOME**

Also available:

- ★ Real Estate System
- ★ Insurance Broker System
- ★ Disk Cataloguing Program
- ★ Other CPM Software

**A & M  
COMPUTER  
SOLUTIONS  
PTY. LTD.**

**2 PROSPECT HILL ROAD,  
CAMBERWELL 3124.  
Telephone: (03) 813 3022.**



## ALTOS 586

**Pace Computer Services**  
4 Help Street,  
Chatswood 2067.  
(02) 411 7888.

ONE of the first multi-user micro-computer systems aimed at the business market was the US-designed and manufactured Altos 8000. But the system's initial release in Australia was not completely successful. The MP/M 80 multi-user operating system was neither efficient nor friendly, and the alternative Oasis operating system was relatively unknown in Australia and lacked sufficient third-party support.

Another failing of the Altos 8000 was poor response times, even in single-user situations. The multi-

user environment, where performance is emphasised, was unhappy with a system that managed to make 8in disks perform as slowly as 5¼in disks. The lack of multi-user software acceptable to the Australian market was another problem.

In 1981, Altos released the 586 multi-user system, in a redesigned cabinet. Although still an 8-bit computer, it was significantly faster than the Altos 8000, but still did not achieve great market penetration. This, again, was mainly because of a lack of suitable multi-user software.



The Altos 586 is a five-user Xenix system.

Last year, the Altos 586 system, using an Intel 8086 processor running at 10MHz, arrived in Australia.

The 8086 processor is matched by an optional 8087 arithmetic co-processor with a Z80 handling terminal I/O. The standard memory is 512K-bytes of parity-checked dynamic RAM, expandable to 1M-byte. The system can support five terminals plus a serial printer and can be expanded to a nine-terminal system.

All Altos 586 systems are configured with 1M-byte of floppy disk storage and can support up to 84M-bytes of hard disk storage. Networking is available for users wishing to connect multiple 586 systems, or when more than nine terminals are required.

The 586 systems use a proprietary memory management system. The memory is divided into 4K-byte blocks that can be accessed separately so that any task can be assigned a series of non-contiguous blocks. Each block can be given write protection and access protection to boost reliability and performance.

The 586 system has built-in IBM asynchronous communications facilities (3270 and 3278 emulation) and 3780 BSC. An additional communications board is available for networking, modems and other peripherals. The 586 also supports an RS422 port.

The Altos 586 (and the 986, which supports nine users) can be configured with a variety of terminals. Pace Computer Services, the Australian distributor, supplies either the Altos compact terminal or the new Freedom 100 terminal, both of which are ergonomically-designed units equal to the best available in Australia.

Where the Altos 586 stands apart from other multi-user systems is in the broad range of available multi-user software. Pace primarily supplies the Xenix operating system, Microsoft's version of Unix, which supports multi-terminal and multi-user operations.

Xenix supports a range of multi-user database and office informa-



tion software written specifically to take advantage of its facilities, or modified from Unix mainframe and minicomputer office information software. Altos has transported a range of these packages to the 586.

The Worknet local area network (LAN) software is designed to allow Altos computers to act as either multi-terminal clusters or as shared network servers without user terminals. Commands can be executed on remote processors if the local CPU is overloaded, and the user's privileges and terminal characteristics are passed to the destination CPU, ensuring security at the user level.

Informix is a relational database management system with a menu-driven user interface and high-level language utilities. It can be used to generate custom screens, write reports and perform ad hoc queries. Informix includes extensive audit trail and recovery routines. Security

at both the file and field level, and locking of files, makes for a true multi-user system.

Unify is a high-level relational database management system featuring the IBM-standard Sequel 2 query language. It provides all multi-user facilities including passwords, menu-level security, program level security and field-level security.

The Altos 586/986 also runs the Lex interactive word processing system, which supports multi-user operation.

The Altos 586 and 986 systems also run MP/M 86 and Pick, although the amount of multi-user application software for these operating systems is limited. Pace Computer Services argues that single-user software does not allow the Altos 586 to be used to its full capacity. The company does not generally support it (a notable exception is Multiplan, sold as the Altos Executive Financial Planner).

For users wishing to develop their own applications, the Altos 586/986 supports Microsoft Basic, RM/Cobol and Cis-Cobol, and Pace claims most RM/Cobol applications will run unchanged on the Altos 586/986.

The Altos 586 still suffers somewhat from the faults of the Altos 8000: it is slow. Uploading and downloading of files is significantly slower than the AED Universe 2, for example, even when running as a single-user system. The 586 also does not support a graphics terminal — a major fault in today's business market.

Pace is committed to providing maximum support for the Altos series. The company incorporates a service organisation that can maintain not only any Altos computer, but also any third-party peripheral bought to run with the Altos, and currently has a six-person software development team working on new multi-user applications.

# Labtam

SERIES  
**3000**



## A world standard computer from Australia

### FEATURES:

- \* Industry compatibility.
- \* Multi-processor architecture 8, 16 & 32-bit processors.
- \* High resolution ReGIS graphics.
- \* Hall-effect keyboard.
- \* Expandability.
- \* Reliability.
- \* Thousands of programmes available.
- \* Ergonomic.
- \* CP/M 2.2 & 86, MP/M 86, MS/DOS and IDRIS (Unix) on the same machine.
- \* Disk access optimisation.

Call **LABTAM** and find out why the rest of the world buys the Australian **LABTAM Series 3000**.

**Labtam**  
INTERNATIONAL PTY. LTD.  
(Incorporated in Victoria)

43 Malcolm Road,  
BRAESIDE, VICTORIA, 3195.  
Phone: (03) 587 1444.

**CANBERRA**  
Computech Pty Ltd,  
Shop 7, Churches Centre,  
BELCONNEN, ACT.  
(062) 51 2525.

**ADELAIDE**  
Labtam Int Pty Ltd  
Suite 3/178 Gray Street,  
Adelaide 5000.  
(08) 51 4141

**SYDNEY**  
Labtam Inter. Pty Ltd,  
2 Help Street,  
Chatswood, NSW.  
(02) 411 2588.

**QUEENSLAND**  
Labtam Inter. Pty Ltd,  
2 Lincoln Street,  
STRATHPINE, QLD.  
(07) 205 3666.

Enter S026 on Enquiry Card

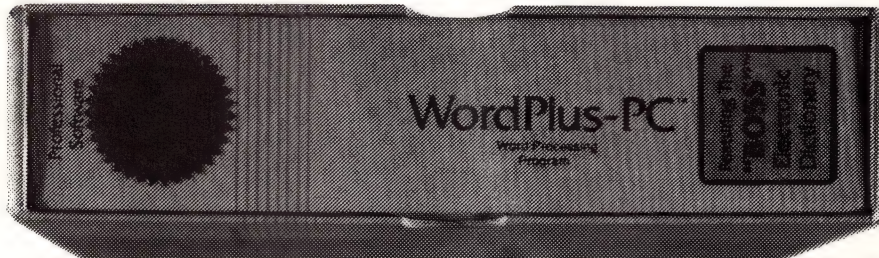


# Soft Solutions for Hard Times

Business is tough today. Tougher than it has been for years. That's why you need all the help available to you just to maintain that competitive edge. Computers offer a new world of management advantages and profit-oriented insights. But you've heard and read that a computer is only as good as the software running on it. And software means hiring expensive programmers to custom-design a suite of applications for your company or firm. Right?

Wrong. The microcomputer revolution has brought some pretty big changes. Including a revolutionary new approach to business software. Today more and more off-the-shelf business software packages are available. For a broad and increasing range of businesses. Including yours.

At SCA we have scoured the world's software centres. And we have introduced into Australia a range of ready made, flexible computer software for business. Primarily designed to run on the successful IBM Personal Computer and other 16-bit microcomputers.



If word processing is a new concept for you, then WordPlus-PC may be just the right approach. One of America's most successful word processing packages and one of the easiest to use, WordPlus-PC includes a powerful merge capability which allows you to send personalised standard letters to large numbers of addressees. As well as a complete range of sophisticated word processing functions, WordPlus-PC is also available with The Boss, a unique on-line spelling check function containing an electronic dictionary of more than 90,000 words. Have your dealer demonstrate to you the power of WordPlus-PC featuring The Boss. Now available for the DEC Rainbow and the Texas Instruments Professional as well as the IBM Personal Computer. RRP (excl. sales tax) WordPlus-PC \$395. WordPlus-PC featuring The Boss \$525.



Data base management used to be confined to professional programmers. But with DBM II, an inexperienced computer user can prepare comprehensive and detailed reports on all aspects of his business. For example, using DBM II and your IBM PC, figures computed on your spreadsheet can be put into on-screen forms which you design, then printed out in the form of personalised letters using your word processor. DBM II is completely compatible with Lotus 1-2-3, MultiPlan, VisiCalc, WordStar, WordPlus-PC and other leading programs. DBM II is designed to be operated by non-technical users and does away completely with hard to remember codes. It's menu oriented and thoroughly and concisely documented. RRP (excl. sales tax) \$395.



If you love your IBM PC but still look covetously at your neighbour's Wang word processor; if you wish you could identify and move a block of copy about as fast as you could point to a "before" and "after"; if you want to zip from page 78 of a document to page 4 in only three key strokes; then MultiMate is for you. MultiMate was designed to bring Wang-like dedicated word processor power to IBM PC. For professional word processing, it's MultiMate. RRP (excl. sales tax) \$595.

Computerising can be a difficult process. That's why we have ensured that all SCA products are well documented, ready to run and easy to use. But if you do strike trouble, our Customer Support Hotline is just a phone call away. At SCA we offer a full range of customer support services, all designed to ensure that you get the maximum possible benefits from your SCA product. As a registered SCA product owner, you will have access to

1. the SCA Product Upgrade Plan that enables you to buy new versions of your product when they are introduced at a special upgrade price;
2. the SCA Product Replacement Plan that allows you to replace defective products after the warranty period at a small charge;
3. SCA's Customer Support Hotline.

If you want some more information about what SCA's fine software can do for you, it's yours for the asking. Just telephone or send us your business card. SCA products are available from selected computer dealers throughout Australia. Call us for the location of the dealer nearest you.



## Productivity tools for Australian business.

**SCA SOFTWARE CORPORATION OF AUSTRALIA PTY. LTD.,**

449 Swanston Street, Melbourne, 3000.  
Telephone (03) 347 7011. Telex AA30458.  
New York Office (212) 846 1142.



# IMS 8000

**S.I. Microcomputer Products**  
107 Walker Street,  
North Sydney 2060.  
(02) 922 3977.

NOT many computer buyers get to choose both the computer they want and the dealer they want to buy from, especially when the dealer is new to that line of hardware. But that is exactly what the first Melbourne buyer of an IMS 8000 shared-bus system did.

When he had selected the IMS as the best machine for his purposes more than two years ago, he convinced the then fledgling Dewhirst Corp to become the local representative of Sydney-based IMS distributor SI Microcomputer Products. For some time thereafter, Dewhirst traded primarily as SI Microcomputer, with IMS sales becoming its bread-and-butter line while it set itself higher goals as a database system vendor.

That first user had a primary requirement to establish a database of medical records of operations conducted within his hospital department, a database which now occupies 10M-bytes of the 40M-byte capacity of his IMS. That machine has four slave cards serving three users, plus one dedicated to MDBS III database management processing.

Two of the user terminals are for general secretarial work — data entry into the database and general word processing. He found IMS gave a better response time than he was used to when competing with 10 student users of a PDP-11/70. For networking operations, IMS was a bit slow, but working within a user's own slave processor it was very quick.

The TurboDOS operating system was easy to work with, although it did not have many utilities. The user was required to configure the operating system to his own hardware, with the number of permutations available under shared-bus architecture ensuring that any specific configuration was unique.

The configuration process included modification of standard device drivers, work that could be done as part of a dealers' sales support if the user did not have the expertise or inclination to take it on. He particularly liked the relative ease of expanding the system under TurboDOS, and was pleased that it had few bugs. The few he had been able to find in release 1.1.4 were corrected in release 1.2.

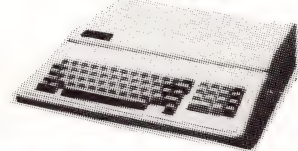
He found that the 64K-byte limit on slave cards became something of a constraint, especially for integrated software featuring screen switching as an economic alternative to window management. The functionality he sought from his software was reminiscent of that more recently offered by Concurrent CP/M, except with the multiple screens being within an application rather than representing different applications.

Unlike many other computer buyers, this user, a keen follower of industry news, has not experienced the "wish I had waited" feeling at any stage since making the original purchase. In fact, two years down the track, he faced a similar decision, and chose the same basic architecture.

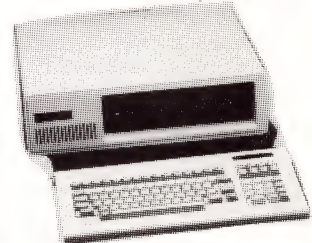
He is leaving his hospital job to form a medical software company and has chosen to become one of the first customers for the high-performance Dewhirst Data Base Engine, which he will use as a development system, the resultant software being able to be delivered on either an IMS or a Dewhirst DBE, depending on a client's performance requirements. That development system is being configured with an 80M-byte CDC Windsor fixed disk and a 60M-byte streamer tape, giving some idea of the kind of processing environment that the shared-bus architecture can handle under TurboDOS.

## YOU NEED NOT OWN A BANK TO HAVE A PERSONAL COMPUTER. LOOK AT OUR PRICES!

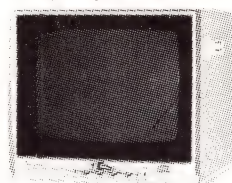
48K Ram Z80 CPU with intelligent keyboard 188 function keys, 10 user define keys **\$360**



64K Z80 & 6502 CPU IBM look-a-like case detachable keyboard 188 function keys, 10 user define keys **\$480**



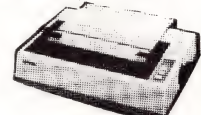
12" green & amber monitors high frequency, from **\$110**



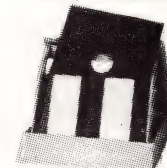
Floppy disk drivers suitable Apple II, from **\$230**



Dot matrices printers using continuous and sheet paper **\$275**  
Daisy wheel printer, letter quality **\$575**



Floppy Disks 5 1/4" and 8" S/S, D/S, S/D & D/D, from **\$2.50**



Add on Cards, 80 column, Parallel cards, Rs232 Serial card, Disk Card (2), Pal card, Printer card, Clock card, Eprom writer Card, Speak Card.

Ring or send 60c postage for free catalogue.

**G.C.S. Sydney** — 67 Blackshaw Ave., Mortdale. 2223. Phone 570-1215  
**Wollongong** — 46 Charles Road, Fairy Meadows. Phone (042) 84-5544.  
Enquiries from agents and distributors invited.



## ICL PC 2 MODEL 16/36

ICL 14 Rodborough Road,  
Frenchs Forest 2086.  
(02) 452 9900.

ICL is no stranger to large multi-user installations. For many years, ICL mainframes were the mainstay of the Australian Bureau of Customs computer system, one of the largest multi-terminal systems in Australia.

With the recent release of a 16-bit multi-user personal computer, ICL has given a clear indication that it intends to be a force in the microcomputer arena as well.

The ICL Models 16 and 36 personal computers use an Intel 8088 processor running at 5MHz

and have as standard 256K-bytes of RAM expandable to 1M-byte. Each has six asynchronous serial ports for the connection of terminals, printers, or other peripherals, and a single serial synchronous communications port. The Model 36 also incorporates a 10M-byte hard disk drive and a 782K-byte 5¼in floppy disk drive, while the Model 16 has two floppy disk drives instead.

Both systems operate under Multi-user Concurrent CP/M 86 capable of handling three terminal users con-

currently, and a maximum of four virtual terminals on each physical terminal. Because the physical terminals are connected to the system unit by a serial cable, the virtual terminals do not have true concurrency; the current program on a terminal is the only one active, with up to three other programs inactive. One result of this "multi-user but not multi-tasking" concurrency is that screen display on each active terminal is updated quickly.

ICL supplies two types of terminal for the 16-bit personal computer models: monochrome screen (24 by 80 characters plus status line), 7 by 9 dot-matrix characters, and detachable keyboard; or an eight-color screen (24 by 80 characters) in a swivel/tilt cabinet, detachable keyboard with monochrome terminal emulation. Neither terminal supports bit-mapped graphics.

The applications software for the ICL PC is limited, including only a 16-bit assembler, Digital Research's Personal Basic, and the MicroPro software range. Individual ICL dealers carry additional third-party software — and provide all support for the software they sell.

Because the ICL 16-bit PC is new to the Australian market, there is only limited true multi-user software available. Because Concurrent CP/M 86 is also only newly released, there is very little imported multi-user software available. This situation is expected to change as the number of Concurrent CP/M 86 installations increases.

ICL also sells a range of 8-bit multi-user personal computers, based on the Intel 8085 processor, and running Digital Research's MP/M 80. Once again, there is only a limited amount of software available that takes advantage of MP/M 80's multi-user facilities.

The ICL PCs will be generally available in April, with sales made by dealers, distributors and software houses. ICL's own sales staff will also sell the ICL PC to large accounts, arguing for its use as an alternative to multiple IBM PCs performing non-current processing of equivalent functions.



ICL PC2 Model 16 running MU-CCP/M 86.



# STAR WORDS



## WHICH PRINTER TALKS TO ANY COMPUTER IN THE GALAXY AND COSTS AROUND 30% LESS THAN IT'S COMPETITORS?

### Who else but STAR?

Character for character, the new STAR GEMINI family is the best value on the planet. A snappy 120 cps is yours for only \$449\* (10 inch paper) or \$795\* (15 inch paper).

And the GEMINI speaks all languages, be it Apple, IBM, NEC, T.I., Commodore . . .

Just see your nearest computer retailer for a demonstration of the Gemini's many features — all included as standard. You'll be amazed at our paper feed system that includes friction platen and fully adjustable tractor feed. Or how about the variety of type styles and graphics — printable in the same line?

\*Please add sales tax where applicable.



## The Printer Range That's Taking The World By Storm

Distributed by:



**Case Communication Systems Ltd.**

1-3 Rodborough Road  
Frenchs Forest NSW 2086

Telephone (02) 452 5231  
Telex AA72982

Enter S029 on Enquiry Card



**Securing the purchase of a computer system often assumes over-riding importance. But the support available immediately after purchase usually determines the success of the installation. This is when the market support representatives (MSRs) come into their own. Deborah Smith talked to three MSRs about their experiences.**

# The USER Is ALWAYS RIGHT

"THERE are salesmen and salesmen. Some explore what the client wants. Others just sell systems. It is the MSR who has to get the system working."

This blunt assessment comes from Terri Darwent, a successful senior MSR for Nec, with 14 years experience in the computer industry. Most who have taken on this job of teaching a client's staff to use their new system have strong feelings about the salesmen they follow.

Robyn Collins of Attache software: "Before, I had to wear whatever the salesman said. To get a sale they'll say the system will make tea or coffee."

"You then go into an office and constantly hear: 'But the salesman said...' You're the one who cops any gripes. It became very wearing."

Averley Whiston of O'Reilly also has her share of stories. But the task of the MSR is much improved now that salesmen tend to be much more professional and experienced, she said.

The importance of the MSR to future client relations for a computer company cannot be over-rated. If the MSR works well and is liked, this may make all the difference in

securing repeat business or, even by word of mouth, attracting new clients.

The bottom line of the job is communication. The MSR needs not only to teach others about their office computer but to make them feel at ease about using it when this is probably a totally new experience.

Skills in dealing with people were agreed on by the three — all very personable — women as the most important attribute of an MSR.

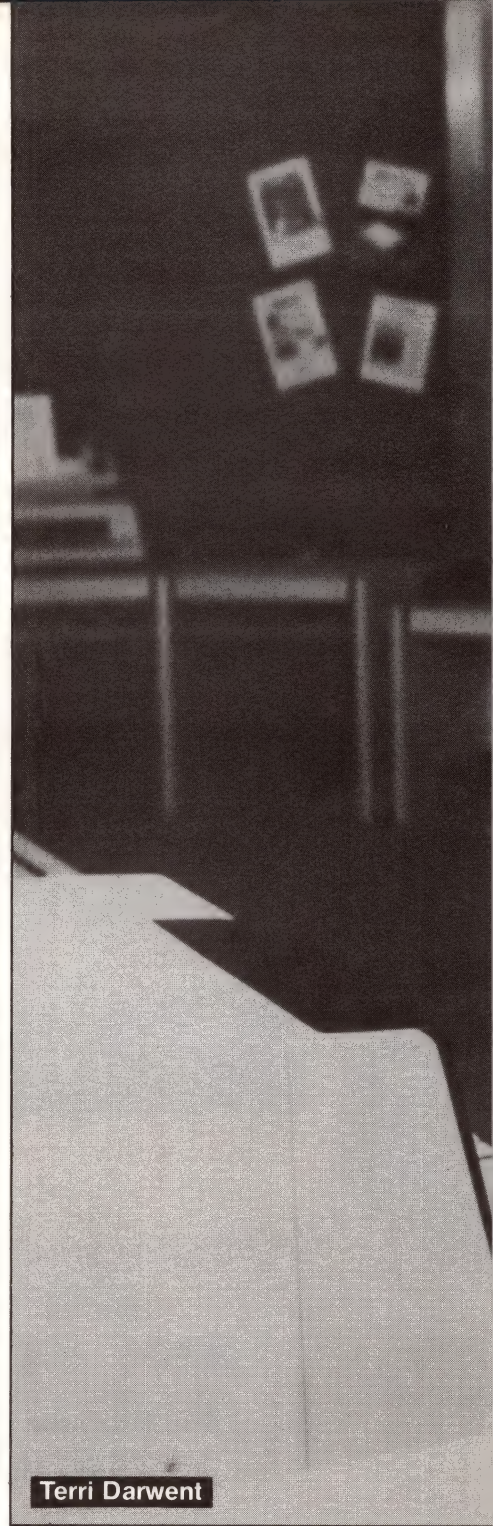
"You need to be patient and like to be with people because you're with them most of the time," Darwent said.

"You have to go into a new office, mix, and then get to know and trust the people there. You need to be able to express yourself well."

Robyn Collins initially worked hard learning to assess the people she met: "I'd give them a score out of 10 and later see if I had them right."

Sympathy may be required; like taking someone for a walk who bursts into tears at the machine, said Whiston. "Others definitely get aggressive and take it out on you."

"There's always someone who hates the world and wishes they hadn't bought your machine. They'd grizzle if you gave them \$1000."



**Terri Darwent**

Whiston thinks this is one of the reasons why the MSR's job traditionally has been done by women: "A man facing an irate man doesn't work. You have to get on well with people."

Women are also much more practical than men, she stressed, before introducing a more cynical note — that the computer industry "tends to be chauvinistic". Female MSRs can be paid less than the traditionally male salesmen.

There is an historical reason why MSRs almost to a person are





women. Good MSRs usually have been operators looking for something extra in their work, Darwent said.

Many began by doing demonstrations for salesmen, particularly with word processors. The task then was to make the operation appear easy, to relax onlookers and, probably most importantly, to recover quickly if something went wrong.

"It's very important to have a rapport with the salesman," Collins said. She admitted that demonstrating was "never her thing".

"If you get on well you can give a brilliant demonstration. It's very hard to recover a sale if something fails."

But demonstrators may know little more than their clockwork performance of a demonstration. Collins is the most sensitive of the three women in believing that the term MSR still can carry connotations associated with demonstrators as "budding beauty queens who press keys and make beautifully justified letters".

During her career, Collins has

toyed with other names for MSRs, like installators — rejected because "it sounded like we installed washing machines". Whiston's term, customer support representative, or CSR, may be preferable.

The present-day MSR must be technically adept as well as personable. She will find herself not only training experienced dealers and other end-users, but operating hot-lines for their problems.

Many good MSRs have experience in programming, thoroughly testing programs and writing user manuals. ►





**Averley Whiston**

Experience in other areas is important too, Whiston said.

Citing the example of installing an accounting system, she said: "You have to understand accounting work as well, so you can give suggestions and advice on the best way to organise their work."

The hardest people to instruct are those who think they know everything, Whiston said. Collins finds those who are very negative the most difficult to handle: "You've got to get rid of the brick wall; make them realise it's easy and computers are here to stay. Being very negative is like not learning to drive."

Sometimes it is an advantage to introduce trainees to the new computer away from their own office. But the remaining training needs to be done in situ, in the real work environment.

But constant interruptions can be a problem. "Sometimes the boss will tell no one to interrupt you, and then he does it himself — and he'll wonder why the training wasn't a great success," Collins said.

It is always preferable to have more than one person learning a new system — in case they leave, or just so they have someone else to consult with and do not feel so isolated. Ideally, the MSR would

always like to involve the management in training as well.

"Then they'd understand why it might take the trainee three weeks to get the system up and running," Collins said. Both Darwent and Collins enjoy working with dealers who have the added incentive of their business interests spurring on enthusiasm to train well.

It also falls on the MSR to educate the dealer about how their particular system compares, and can be expected to sell, against competitors' models.

Being a good MSR is a hectic occupation — missed lunch breaks and staying on late with clients seem common. But it is never boring, and there are rewards.

"Some people say at first, 'I can't possibly learn this,'" Collins said. "Later they're saying, 'I never thought I'd pick this up.' It's very satisfying."

## PROFILE 1

Terri Darwent joined Nec just over a year ago, soon after the company released its Advanced Personal Computer. After testing new software and writing a dealer's training manual, she threw herself into training courses for Nec dealers.

To help with the hundreds of hotline phone calls a week, on top of the training schedule, Darwent has recently gained two extra staff. A slight, sandy-haired woman in her early 30s, she has been in the computer industry for 14 years and still loves the challenge.

"You can't sit back with what you know," she said. "There's always a new product — something else to learn."

She's constantly looking out for new software.

Darwent did not become an MSR via the classic route. After school she tried clerical work and punching tax returns on a paper tape machine — "very boring work".

Then a move to South Australia saw her spend 10 years with what was originally Litton Business Systems.

Apart from demonstrating, Darwent learnt programming and sys-



tems analysis and started some MSR work. Her experience, coupled with some academic studies, became a valued combination.

After travelling overseas, she spent time with Daro and Olivetti, and eventually she moved into micro-computers at Commodore. The nature of her work was visiting new clients, finding out what they wanted from their systems as well as training both dealers and end-users.

---

## PROFILE 2

---

Averley Whiston, a sporty, dark-haired woman in her late 30s, considers she has been very fortunate in being "in the right place at the right time since I started out at 17 and falling into computers". New Zealand-born, her initial job was a steady choice with the Post Office, though she would have preferred being a vet or a sports teacher.

She quickly moved to Western Australia and began wiring punch paper tape equipment for NCR. After a long association with the company, and a visit home, Whiston did similar work with Olivetti — physically programming their mechanical machines.

Eventually, electronic machines came on the market, and she became involved with micros, training and demonstrating. Like all three MSRs interviewed, Whiston interspersed some overseas travel with her career.

On return, she was a mainframe operator for AAP — preparing the Golden Guide horse race results. Then the greater challenge of an MSR's position with O'Reilly attracted her, and she joined the micro specialist two and a half years ago.

---

## PROFILE 3

---

Robyn Collins, tall, slender with long brown hair, has an unusual way of relaxing from the challenging position of support manager she has recently taken at Attache software. She likes to spin yarn.

"My mind goes all day, so I enjoy using my hands in the evening. If I



**Robyn Collins**

feel a bit frantic, I can pick up the spinning wheel and calm down. It's very basic." Collins would like to progress to being a very competent weaver.

Her career path has crossed that of Terri Darwent.

Collins began operating accounting machines — "great big clunkers" — for several years in Adelaide and Sydney. Her first contact with computerised machines, using mag stripe ledger cards, was with a merchant bank.

Several years of travelling intervened before she joined Darwent at Daro. Together they thoroughly tested programs and wrote manuals

to go with them, as well as dealing with clients.

Both women went on to Olivetti, continuing with MSR work. Collins could see micros were taking off and wanted some of the action, so she joined a dealership, Computer Systems, in suburban Caringbah.

After 18 months gaining retail experience, more technical knowledge and dealing with family buyers as well as training other end users, she considers the move worthwhile. Now in her early 30s, Collins will try her hand at management with Attache — making sure dealer training, the hotline and manual production all operate smoothly. **m**



# SIEMENS

## Siemens PT-88 the super-silent ink-jet printer Anything else is just a lot of noise



In a market where noisy superlatives such as "incomparable", "second-to-none" and "the epitome of excellence" are casually applied to a wide variety of printers, Siemens has taken a more quiet and purposeful approach.

Siemens PT-88 is a new ink-jet matrix printer. Upon close inspection, you'll see that it is equipped with all the features your business can benefit from – consistent print quality in a variety of type styles, high speed (150 cps), tractor or single sheet plain paper feed, full graphics capability, universal interface with personal or desk computers, and modular design

for simplified service, if it is ever required.

But in addition to this, the PT-88 offers you something that other printers can't... a QUIET working environment. Listen very carefully. The super silent PT-88 whispers while it works, at less than 45 dBA. Compare it with others, then think of how nice it will be to accept phone calls or conduct meetings while the PT-88 is hard at work, right next to your work place, if you wish.

In short, the PT-88 puts it all together – reliability, flexibility, performance, and low cost operation – all in one

compact, super-silent unit. The result is a printer of exceptional long term value.

For more information, contact:–  
Communications Terminals Dept.  
Siemens Ltd. (Incorporated in Victoria)

Melbourne: 544 Church Street, Richmond,  
Vic. 3121 Phone 420 7111

Sydney: 383 Pacific Highway, Artarmon,  
N.S.W. 2064 Phone 436 8711

Brisbane: 9 Parkview Street, Milton, Qld. 4064  
Phone 369 9666

Perth: 153 Burswood Road, Victoria Park,  
W.A. 6100 Phone 362 0123

TRADE ENQUIRIES WELCOME

## Quietly impressive printers from Siemens

506K/629/4888

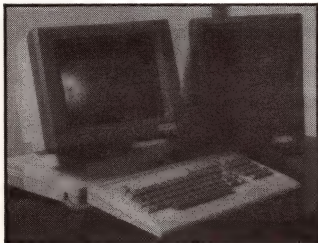
Enter S000 on Enquiry Card



# SYSTEMS

## Prest Chieftain

PREST computers has released the US Chieftain series of computers under the Prest label, in a variety of configurations priced from \$5500. The Prest uses an OS-9 operating system developed by Microware System Corp in co-operation with Motorola. The computer can handle 14 workstations and four printers without modification. The system has a standard 128K-bytes of RAM, eight serial ports, one parallel port, video display and keyboard.



Each computer has at least two SS-50 slots for further expansion. Languages include Basic, Basic 09, Pascal, Cobol and Assembler. Software packages include accounts payable, accounts receivable and payroll, inventory control and general ledger, word processing and spelling check. The configurations range from dual 1½M-byte floppy disk drive to a single 20M-byte Winchester drive and a 60M-byte tape streamer.

**Further information:** Prest Computers Pty Ltd, 5 Empire Court, Carlingford, NSW 2118. Tel: (02) 683 1557.

Enter S553 on Enquiry Card

## Televideo TS804

DATA Peripherals has released the Televideo TS804, a four-user

computer system integrated into a single desktop enclosure. Designed to work in a multi-user business environment, the Televideo TS804 can support a wide selection of peripherals and a choice of MP/M II and CP/M Plus operating systems. Features include a 4MHz Z80A microprocessor with concurrent DMA, intelligent disk controllers, 19.2 K-baud RS232C channels, single instruction memory mapping, 320K-bytes of RAM, and a disk cache for high-speed storage access. Price is \$6995 excluding sales tax. This price will include a 10M-byte hard disk unit, a 1M-byte floppy disk drive, 320K-bytes of RAM and the MP/M II operating system. Data Peripherals announced details and pricing on the Tele-PC computer, shown by Televideo for the first time at the recent US Comdex show. The Tele-PC (a 16-bit desktop personal computer that is fully hardware and software-compatible with the IBM PC) costs \$4750, plus tax.

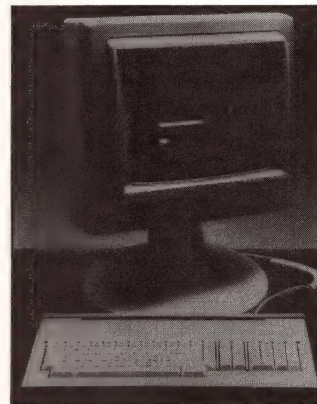
**Further information:** Data Peripherals Pty Ltd, 9 Avon Rd, Nth Ryde, NSW 2113. Tel: (02) 888 5733.

Enter S554 on Enquiry Card

## Tiger, Tiger

REMINGTON has released the Tiger 32 and 64 computer family from Cado Systems Corp in Australia. The 16-bit Tiger 32 is capable of supporting up to 32 terminals and other devices. The 64 is the bigger brother. Response times are equal to or better than systems supporting only eight or 10 workstations. The Tigers feature a tri-level architecture, integrating as many as 14 microprocessors to share the

processing load. Separate transaction processors are assigned to groups of eight or fewer terminals and other devices. Each transaction processor then supports those devices, all running at 19,200 bits/sec.



All the Tiger processors access and share common global memory expandable from 256K-bytes to 1.02M-bytes in 128K-byte increments. The intranet processor handles longer processing tasks and centralised timing commands, monitors system alarm functions, supports all tasks forwarded by the transaction processors and itself forwards selected tasks to other processors for specialised handling. A second intranet processor may be added. The Tiger 32 may include one to four micro Winchester drives — with 15M-bytes of storage each, capacity can total 60M-bytes. The Tiger 64 system console contains two Winchester drives which can be expanded to 10 Winchesters. With capacities of 30, 60 or 142M-bytes each, virtually any disk combination can be configured, providing an available capacity of up to 1.1G-bytes.

**Further information:** Remington Office Machines Pty Ltd, 68 Waterloo Rd, Nth Ryde, NSW 2113. Tel: (02) 888 2444.

Enter S555 on Enquiry Card

## Tandy offerings

TANDY Australia has released the new TSR-80 Color Computer 2 range of home computers which includes: the 16K-byte Standard Color Computer 2 (\$349.95), the 16K-byte Extended Basic Color Computer 2 (\$449.95) and the 64K-byte Extended Basic Color Computer 2 (\$599.95). The Color Computer 2 line is a refinement of the initial TRS-80 home computer. The new model's most important feature is a re-designed style keyboard. The interior of the Color Computer has also been re-designed to enable easier expansion and servicing, and a crisp white color replaces the former silver case. Apart from a larger memory, the Color Computer 2 can be used with two disk operating systems — OS-9 (\$99.95) and Basic OS-9 (\$149.95). Both systems access the entire memory of the Extended Color Computer 2 and include editing, assembling, execution and debugging modes.

OS-9 includes functions for disk and terminal input/output, software memory management and multitasking. It contains about 40 utility programs for system and disk file maintenance and control. System programs are written in Assembly language, except for some utilities written in C. Basic OS-9 is an enhanced version of standard Basic, written for the 6809 microprocessor.

Other Color Computer peripherals to be upgraded include the 64K-byte RAM Kit (\$149) and the Extended Color Basic ROM Kit (\$99.95). The 64K-byte RAM Kit expands any Color Computer to 64K-bytes, while the Extended Color Basic ROM Kit upgrades a Color Computer for advanced high-resolution graphics.

**Further information:** Tandy Australia Ltd, 91 Kurrajong Ave, Mt Druitt, NSW 2770. Telephone: (02) 675 1222.

Enter S556 on Enquiry Card

# Caulfield Business Computers

## Personal Electronic Printers

- \* Near letter-quality printing
- \* 4K full function memory
- \* Doubles as a calculator
- \* Editing capabilities
- \* Print out hard copies for your micro
- \* Down load as well as receive
- \* Lightweight
- \* Easy-to-read liquid crystal display
- \* It even "talks" on the telephone



The new  
Brother EP44.

**\$399**

recommended retail price  
Prices may be slightly higher in N.S.W.

Caulfield Business Computers  
874 Glenhuntly Road,  
Caulfield South, Vic 3162.  
Telephone (03) 528 4555.

Enter S003 on Enquiry Card



# PERIPHERALS

## Osborne booster

OSBORNE Sales Centre (Aust), the new marketing organisation for Osborne computers, is offering a RAM disk for the Osborne 1 transportable computer. The product, Drive C, is a semi-conductor disk in a case that slides into the diskette pocket of the computer. Installation takes 30 seconds, after which an Osborne 1 will have twice the disk capacity and twice the performance of the double-density version. Different versions of Drive C can add 384K-bytes or 192K-bytes of disk capacity or upgrade a 192K-byte Drive C to 384K-bytes. A kit that includes an assembled Drive C without RAM chips and two PALs will also be available. Prices for Drive C will start around \$600, sales tax included.

**Further information:** Osborne Sales Centre (Aust), 93 York St, Sydney, NSW 2000. Telephone: (02) 290 3344.

Enter S500 on Enquiry Card

## Slim keyboard

MICROPROCESSOR Applications has released the WY-50, a high resolution terminal with a 14in non-glare screen that can be fitted and swivelled and a slim 101-key keyboard. The WY-50, which costs \$1245 a unit (excluding tax), offers 80 or 132-column displays, a 26th status line, a 128-character Ascii set plus extended graphics characters, a 7x13 dot character matrix in a 10x13 cell and 16 programmable function keys providing 32 separate codes. The keyboard has seven cursor-

control keys and seven dedicated editing keys. Other capabilities are smooth scrolling (three levels) split screen, programmable answer back, screen saver and an RS232 auxiliary port. Terminal parameters such as cursor type, transmission speed and operating mode may be entered to non-volatile memory from the keyboard.

**Further information:** Microprocessor Applications Pty Ltd, 48 Rutland Rd, Box Hill, Vic 3128. Tel: (03) 890 0277.

Enter S501 on Enquiry Card

## Ticket printers

EATON Printer Products, a division of Eaton Corp of the US, has appointed Datascape Australian distributor of its specialised dot matrix mechanisms and point-of-sale and ticketing printers, featuring fast paper feeds, journal roll take-up spools, multiple line validation and journal roll, split platens and ticket/form mechanisms. Model 4000 prints 120 char/sec over 40 columns. Forward and reverse line feed and inverted reverse printing is possible and graphics printing and double-width characters are standard. Interface is serial RS232 and parallel Centronics type (switch selectable). The Eaton Model 7000+ is a 40-column, 12 char/in journal printer for general industrial and commercial applications.

**Further information:** Datascape Int Pty Ltd, 33 Grosvenor St, Neutral Bay Junction, NSW 2089. Tel: (02) 909 1233.

Enter S502 on Enquiry Card



Eaton's Model 4000 document printer.

## Graphics to WP

A DESK-TOP matrix lineprinter designed for plug compatibility with the IBM PC and other popular microcomputers has been announced by Macroset. The Printrex MVP 150B, made by Printronix Inc, of Irvine, California, supports applications from graphics to word processing, including Lotus 1-2-3 and Benchmark. Other features include proportional spacing, a choice of many fonts, host mode switching and bit-mapped graphics. The MVP 150B prints quality office correspondence at 80 lines/min and drafts reports at speeds up to 200 lines/min on forms from 3in to 16in wide. The device plots at 100 x 10 dots per 2.5cm and is compatible with leading graphics software packages.

**Further information:** Macroset Staff Holdings Pty Ltd, 47 Hotham Pde, Artarmon, NSW 2064. Tel: (02) 922 6084.

Enter S503 on Enquiry Card

## Hard-disk upgrade

AMPEC Electronics has available a removable 5M-byte Winchester hard disk drive for upgrading the IBM PC. The unit is fitted into the PC after removing one of the floppy disk drives. A controller board is fitted into one of the PC vacant card slots and a small bracket is used to fix the Syquest SQ306R Winchester drive into the case. A data/control cable and power supply connection completes the modification. A kit costs \$1950 but it is recommended that the modification be done by Ampec. The company is also selling a printer that can generate text or graphics in 16 colors at a draft speed of 200 char/sec or letter quality at 110 char/sec. The printer also offers logic-seeking, bi-directional operation, programmable color control, interchangeable spacing, line spacing, forms length, margins and tabs.

**Further information:** Ampec Electronics Pty Ltd, 114 Terry St, Rozelle, NSW 2039. Telephone: (02) 818 1166.

Enter S504 on Enquiry Card

## Two-pen plotter

THE Houston Instrument DMP-40-2 plotter uses two pens to create multi-color business graphics or draw different line widths for critical drafting applications. Standard 8½ x 11in and larger 11 x 17in formats are available in bond, vellum and acetate film (for overlays or overhead transparencies). The two formats are interchangeable with drafting sizes A and B. Two intelligence levels allow plotting in "smart" or incremental modes. The plotter can automatically

generate complex figures such as circles, arcs, ellipses and general curves from a single, simple command. More than 100 programs are available for the DMP-40 series.

**Further information:** Anderson Digital Equipment Pty Ltd, 14 Whiteside Rd, Clayton, Vic 3168. Tel: (03) 544 3444.

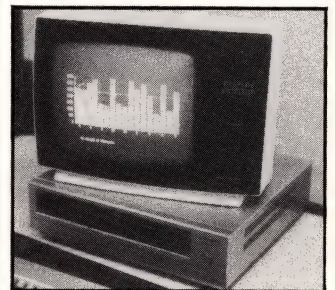
Enter S505 on Enquiry Card

## Sanyo monitors

SANYO Data Systems has released two low-cost black-and-white graphic and alphanumeric display monitors for most computer applications. The DM2112 (green display) and DM2212 (amber display) monitors have 12in diagonal CRT with high-resolution display of 1280 characters (64 characters x 20 lines). Each measures 395mm wide x 285mm high and 315mm deep. The DM2112 costs \$239 and the DM2212 \$269.

**Further information:** Sanyo Data Systems, 127 Walker St, North Sydney, NSW 2060. Telephone: (02) 929 4644.

Enter S506 on Enquiry Card



Sanyo's low-cost monitor.

## Low-cost plotter

THE measurement and control division of Electrical Equipment Ltd has released three printers and a printer/plotter. The FAX-80 and CP-80 are dot-matrix printers designed to operate under software control from any computer system, and the DWX-305 is a letter-quality daisywheel printer for use with personal computers and word processors. The MCP-40 is a low-cost four-color printer/plotter for use with personal computers. A version of the FAX-80 dot-matrix printer is available for the education market.

**Further information:** Electrical Equipment Ltd, 192 Princes Hwy, Arncliffe, NSW 2205. Telephone: (02) 699 9666.

Enter S514 on Enquiry Card

## PC expanders

DICKER Data Projects will distribute the Sandstar series of IBM PC expansion boards made by Maynard Electronics. The boards allow custom-designed functions by adding optional modules.



To obtain further details of products in the editorial columns or advertisements which carry an *Enquiry Number*, use the **FREE Product Enquiry Service**. Just enter the Enquiry Numbers on a Product Enquiry Card but not more than six to a card please. If making more enquiries please use a second card. Finally, complete your name and address PLUS Job/Title and Industry codes plus micro information which is for statistical purposes only. Your enquiries will be speeded to the companies concerned for servicing.

#### B/TITLE CODES:

Director/partner/general manager  
Co. secretary/other corporate manager  
DP management; operations; systems analysis; programming; other inhouse DP staff  
Software/systems development  
Computer consultants  
Office administrators  
Technical/Scientific/R&D  
Engineering/Manufacturing management  
Accountant/Lawyer/Medicine  
Marketing/Sales  
Educators/Librarians  
Consultants (other than Computer Consultants)  
Student  
Others \_\_\_\_\_  
(Please describe)

#### INDUSTRY CODES:

Computers and electronics including manufacturers; system and software companies; OEMs; dealers; distributors; marketers.  
Manufacturing, other than computers and electronics.  
Public Utilities/Communications Systems/Transportation.  
Wholesale/Retail Trade  
Finance/Insurance/Banking  
Mining/Construction/Oil and Refining  
Business/Services (not DP)/Real Estate  
Education/Medicine/Law  
Government — Federal/State/Local  
Printing/Publishing/Other Communication Services.  
PR and Advertising  
Others \_\_\_\_\_  
(Please describe)

# FREE Product Enquiry Service

To obtain further details — literature, prices and other information that may be available — for the products described in the editorial columns or from advertisements, enter the number shown at the foot of the item onto the **PRODUCT ENQUIRY SERVICE CARD**.

Please do not enter more than six (6) enquiries on any one card. You may complete more than one card if required.

Finally, enter your name, address, job function and other details, and simply pop into the mail.

Your enquiry/s will be passed to the company/s concerned as soon as possible in order that they may forward the information to you. **Enquiries will not be processed after two months following issue date.**

#### IMPORTANT

In order that you may continue to receive Australian Micro Computerworld and to use the *Product Enquiry Service* for the information you require from future issues, we suggest you enter a subscription for \$28 per year. Usual price for 12 issues is \$30.

PLEASE USE THESE CARDS FOR ENQUIRIES FROM THIS ISSUE ONLY

## Product Enquiry Card

**Australian**  
**micro**  
COMPUTERWORLD

### ENTER ENQUIRY NUMBERS

--	--	--	--	--	--

Name \_\_\_\_\_

My job title code is ☐

Title (opt.) \_\_\_\_\_

My industry code is ☐

Company (opt.) \_\_\_\_\_

☐ I use a micro for professional use.

Address \_\_\_\_\_

☐ I own a micro for personal use.

Postcode \_\_\_\_\_

☐ I intend buying a micro within 12 months.

Telephone (optional): ( ) \_\_\_\_\_

☐ Please tick if you are already a subscriber.

Signature \_\_\_\_\_

SC

## Product Enquiry Card

**Australian**  
**micro**  
COMPUTERWORLD

### ENTER ENQUIRY NUMBERS

--	--	--	--	--	--

Name \_\_\_\_\_

My job title code is ☐

Title (opt.) \_\_\_\_\_

My industry code is ☐

Company (opt.) \_\_\_\_\_

☐ I use a micro for professional use.

Address \_\_\_\_\_

☐ I own a micro for personal use.

Postcode \_\_\_\_\_

☐ I intend buying a micro within 12 months.

Telephone (optional): ( ) \_\_\_\_\_

☐ Please tick if you are already a subscriber.

Signature \_\_\_\_\_

SC





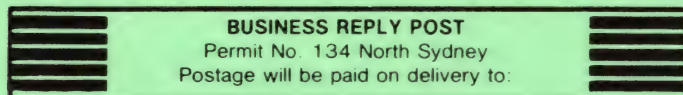
## PRODUCT ENQUIRY SERVICE

*The easiest and fastest way to obtain the Information you require.*

**For details, see reverse side.**



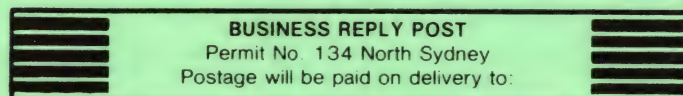
No Postage Stamp Required  
if Posted in Australia



Reader Service Department,  
Computerworld Pty. Ltd.,  
P.O. Box 929,  
CROWS NEST 2065 AUSTRALIA



No Postage Stamp Required  
if Posted in Australia



Reader Service Department,  
Computerworld Pty. Ltd.,  
P.O. Box 929,  
CROWS NEST 2065 AUSTRALIA

If you like what  
you're reading  
now you'll want  
to be reading it  
every month

And the only  
way to  
guarantee that  
is through an  
annual  
subscription

\$28 p.a. for 12  
issues or just  
\$2.33 a month  
has got to be  
one of the  
best bargains  
around.



Dicker Data is also distributing Maynard Electronics hard disk drive systems with optional functions on the drive-controller card. **Further information:** Dicker Data Projects Pty Ltd, 78 Captain Cook Drive, Caringbah, NSW 2229. Telephone: (02) 525 2122.

**Enter S515 on Enquiry Card**

## For the hobbyist

THE Star STX-80 thermal printer from Systems Peripherals is a serial dot-matrix printer capable of 60 char/sec in 80 columns. The bi-directional logic-seeking unit is aimed at home or hobby users. The parallel interface is Centronics compatible and the machine has a pre-programmed self-test print function. A paper roll 100 feet long and 8 1/2 in wide is housed in the printer. Recommended retail price, excluding tax, is \$295. Systems Peripherals is also distributing the SP1320 impact printer, which offers QUME compatibility for printwheels and ribbons and a printing speed of 20 char/sec on single sheets or continuous forms up to 13 in wide. Tractor and single-sheet feeders are available and the printer can be supplied with eight-bit parallel and serial (through an RS232C) interfaces. Recommended retail price is \$720 excluding tax. The MCP40 color printer/plotter offers four-color printout (black, red, blue and green), selectable 40 or 80/char line width and a standard roll of 4 1/4 in paper. Recommended retail price for the MCP40 is \$299 excluding sales tax. Systems Peripherals is also distributing the Automatic Ice Universal parallel printer card which will drive most parallel dot matrix and daisywheel printers for the Apple II, IIe, III and compatible micro-computers. The Automatic Ice card retails for \$121 excluding tax.

**Further information:** Systems Peripherals, 210 Parramatta Rd, Stanmore, NSW 2048. Telephone: (02) 568 3790.

**Enter S516 on Enquiry Card**

## Stylish terminals

THE TeleVideo 914 terminal from Anderson Digital Equipment has a non-glare, high-contrast green CRT that tilts and swivels for user comfort, a detached low-profile keyboard and an accounting-style keypad. The 914 provides three non-volatile, programmable function keys (six with shift), 64 special graphics characters, conversational, block, and monitor modes, non-volatile English set-up menu, 32 non-embedded visual attribute combinations and protected fields. The more powerful TeleVideo 924 terminal boosts programmable function keys to 16 (32 codes) and also offers a reconfigurable keyboard, character block graphics, programmable delimiters, four pages of memory (optional), logical attributes and eight resident national character sets.

**Further information:** Anderson Digital Equipment Pty Ltd, 14 Whiteside Rd, Clayton, Vic 3168. Tel: (03) 544 3444.

**Enter S517 on Enquiry Card**



TeleVideo 924 terminal.



Datascape's new color dot-matrix printer.

## Speed upgrade

DATASCAPE has released an improved model of the Anadex Silent Scribe matrix impact printer, the Silent Scribe B series. Speed has been upgraded through a printhead redesign that gives a 20 per cent increase at all character pitch settings. The RS232C interface is optional and buffer storage has been increased to 3.5K-bytes with a further 2K-bytes optional. Print function and dip switches have been moved to a front panel. Datascape has also introduced a range of Anadex Color Scribe printers that will reproduce computer-generated color graphics. Sixteen control code sequences identify color shades, eliminating escape strings for color mixing. Color Scribe can be used by replacing the color ribbon with a black ribbon cartridge. A nine-wire, dual-pass printhead delivers 67 char/sec of enhanced print, 240 char/sec for data processing and dual density dot-addressable color graphics.

**Further information:** Datascape Int Pty Ltd, 33 Grosvenor St, Neutral Bay Junction, NSW 2089. Tel: (02) 909 1233.

**Enter S520 on Enquiry Card**

## Fast and quiet

CASE Communication Systems has introduced a printer that combines quality and high-speed draft printing with a low noise level. In quality mode, the PT930 operates as a daisywheel look-alike but is two to three times faster — an 18-wire printhead produces high clarity print at 80 char/sec. In draft mode the 930 operates at 200 char/sec with bi-directional logic-seeking printing. Single and dual sheet feeders are available. The 930 comes as standard with serial and parallel interfaces. Options include Epson emulation and additional and downloadable fonts.

**Further information:** CASE Communication Systems Ltd, 1-3 Rodborough Rd, Frenchs Forest, NSW 2086. Tel: (02) 451 6655.

**Enter S518 on Enquiry Card**

14 Gore St, Albion  
Queensland 4010.

# BUSINESS SCOPE-QLD

(07) 262 2877

**SPECIALISING IN EASY TO USE APPLICATION SOFTWARE FOR MOST CP/M 80-CP/M 86 & MS-DOS MACHINES**

**\* ARCHCOMM**

Architects office costing

**\* AUTOCOM**

Car yard sales management

**\* CLUBCOM**

Club membership and management

**\* CLUBCOM II**

Membership control for health clubs

**\* COSTCOM**

Builders & contractors project costing

**\* SCHOOLCOM**

School administration

**\* REAL COM**

Com/Ind real estate sales

**\* UNION**

Membership control with contributions

**\* CASHCOM**

Cashbook with analysis

**\* CURCOM**

Curtain quotations with work sheets

**\* DEBTORS, CREDITORS  
GENERAL LEDGER**

Which can be integrated with any of our packages

**DEALER ENQUIRIES WELCOME**

**Contact your local distributor:**

**NSW:**  
ARCHIVE COMPUTER SERVICES  
(02) 923 1636

**VIC:**  
MAXIOM COMPUTER SERVICES P/L  
(03) 819 4277

**SA:**  
LINX COMPUTERS  
(08) 223 1466

**WA:**  
HOLLARD COMPUTER SYSTEMS  
(09) 322 7917

Enter S001 on Enquiry Card



## BBC packages

BBC Publications has added a number of new packages to its software range. Toolbox is a collection of 24 utility routines, falling into two groups. The first consists of routines designed to be incorporated into your programs and the second group are complete programs in their own right. Available only on cassette, the recommended retail price is \$79.95 for the Model B with Operating System 1.0 onward. It comes with documentation. Record Keeper, available on cassette for \$55, is a useful package enabling users to store and access information. It consists of two programs, Editor and Report. Beyond Basic, on cassette only for \$45, provides an introduction to Assembly language programming on the BBC Micro. It contains more than 70 programs illustrating a variety of topics which are covered more fully in the book of the same name, available separately for \$19.95. Vu-Type is a typing and keyboarding tutor, on cassette only for \$67.45.

Motorists' Log is a personal aid package designed to allow the user to make informed, money-saving motor vehicle judgments and is available on cassette (\$39.95) and disk (\$47.45) for the Model B only. Home Finance, consisting of four programs concerned with consumer decisions, is on cassette only for \$39.95. Games available from BBC publications include a game of skill and judgment and quick reactions, White Knight, a chess game available on cassette (\$45) and disk (\$52.50) for Model B with Operating System 1.0 onwards and Doctor Who, in the Top 10 on the 1983 Acorn User Software Chart, available on cassette (\$39.95) and disk (\$47.45) for Model B only.

**Further information:** Pitman Education Software, PO Box 160, Carlton South, Vic 3053. Tel: (03) 347 3055.

**Enter S529 on Enquiry Card**

## Latest from Lotus

A POWERFUL successor to the popular Lotus 1-2-3 integrated software package has been announced by Sourceware Pty Ltd. The product, named Symphony, was developed by the 1-2-3 producers, Lotus Development Corp, of Boston, and will initially be available only for the IBM PC and XT computers. Symphony will be available in Australia about June at a probable cost of \$1100-\$1200. The package combines

spreadsheet, graphics, enhanced database management, and full word processing capabilities and makes extensive use of "windowing". Sourceware has also announced software packages for three-dimensional modelling and for project management. MicroCAD, developed by Computer Aided Design in San Francisco and expected to retail in Australia around \$1100, makes it possible to design complex objects and models in three dimensions on microcomputers, bringing computer-aided design within reach of all architects, engineers and designers.

MicroCAD supports a light pen and digitiser tablet and a wide range of plotters. Data from Visicalc files can be displayed as high resolution graphics. MicroCAD is designed to run on an IBM PC or IBM XT with a minimum 128K-bytes of RAM using two disk drives. It will also work with hard disk. The Harvard project manager helps plan and control small or large projects in the office or on-site.

The project manager runs on the IBM PC and XT under PC-DOS 1.1 and 2.0. It needs 128K-bytes of memory and one double-sided disk drive or a hard disk. It will run on IBM-compatible machines under MS-DOS.

**Further information:** Sourceware Pty Ltd, 4/73 Albert Ave, Chatswood, NSW 2067. Tel: (02) 411 5711.

**Enter S530 on Enquiry Card**

## Sunshine Superfile

SUNSHINE State Scientific Systems has released Southdata Ltd's Superfile in Australia. Superfile, an information management system for microcomputers, allows each record to be different from the next, even in the same file. Superfile is an extension to the computer's operating system, and can interface simply with many commonly used higher level languages such as Basic, C and Pascal. (Microsoft Basic comes as standard). It also supports multi-user systems, which store only the information which is entered and provides two supporting packages, Superforms and Supertab, which enable end-users with no programming knowledge to create their own applications. Superfile needs a Z80 machine running CP/M with at least 56K-bytes of RAM and disks. On multi-user systems it will run under TurboDOS, CP-Net, Hi-Net, Sig-net and others. Superfile 16, which will be

released soon, will run under MS-DOS, PC-DOS, CP/M 86, Unix and IDRIS. The 8-bit single-user system trio of Superfile, Superforms and Supertab will retail for \$1300. A Demo with limited file size and abbreviated manual costs \$75.

**Further information:** Sunshine State Scientific Systems, 16 Niddrie Dr, Toowoomba, Qld 4350. Tel: (076) 35 3362.

**Enter S531 on Enquiry Card**

## Simplifying CP/M

CP+, a collection of Vector computer control programs, is available from Dicker Data Projects Pty Ltd. The software generates a screen control panel that displays status messages and information, instructions on what to do next, and a series of multiple-choice function selections. It also provides housekeeping functions for effective file management. CP+ is independent of applications programs such as word processing, general ledger or financial analysis. It helps find and use them, but in no way affects how they operate. It can be pictured as a shell that surrounds all other software, replacing CP/M "techno-jargon" with simple English language messages and directions. CP+ runs on all vector systems using standard CP/M 2.2.

**Further information:** Dicker Data Projects Pty Ltd, 78 Captain Cook Dr, Caringbah, NSW 2229. Tel: (02) 525 2122.

**Enter S532 on Enquiry Card**

## Graftalk graphics

DATA Peripherals has introduced Graftalk, a business graphics package for the Televideo TS803 and TPC-1 portable computer. Graftalk is a business orientated package that allows users to create graphics by either interactively entering data or by retrieving data from disk files. Titles, axis names, tick mark names and any other alphanumeric labelling in any position or orientation can be altered, added or deleted as required. The size of the plot may be changed as can positioning anywhere on the plotting surface. Multi-color plotting is supported for devices with color capability.

**Further information:** Data Peripherals Pty Ltd, 9 Avon Rd, Nth Ryde, NSW 2113. Tel: (02) 888 5733.

**Enter S533 on Enquiry Card**

## Classics games

COMPUTER Classics has released several computer games, new educational aids and the Super Joy 18 joy stick. Games for the VIC-20 are Death Star, Laser Shoot, Tanks, Ice, Convention

and Metro Blitz. Three arcade packs have been released, each containing five games on one tape. Among the new Games for the Commodore 64 include Thermoclearwargames, Metro Blitz, Neoclyps and Evolution. The Super Joy 18 joy stick features three fast responsive firing buttons, comfortable palm grip, superior control and universal jack with extra long cord. Computer Classics has also been awarded Australian distribution rights to Evolution, a computer game written by two Canadian schoolboys, 16 and 18 years old. An Australian-written strategic simulation game called Reach For The Stars has also been released for Commodore 64 and Apple IIe computers.

**Further information:** Computer Classics Pty Ltd, 11-15 Falcon St, Crows Nest, NSW 2065. Tel: (02) 428 4866.

**Enter S534 on Enquiry Card**

## Library systems

THE Library Software Co, writer of microcomputer programs for small libraries, has appointed S&M Supply Co as its Australian distributor. Programs which include the Overdue Writer, A-V Catalogue Writer and Bibliography Writer will be produced by S&M in Melbourne for Apple IIe and TRS 80 hardware. Meanwhile, S&M reports that initial acceptance of Booktrak microcomputer library management programs has been beyond expectations, with seven circulation systems installed in February. A video film on the system will be available soon for lending to distant regional library groups and the system manual can be purchased separately, the cost being refunded if the program is bought.

**Further information:** S&M Supply Co, 234 Balaclava Rd, Caulfield, Vic 3162. Tel: (03) 509 7822.

**Enter S535 on Enquiry Card**

## Diary 64

COMMODORE Business Machines has released a new time management/database program called Diary 64 for the Commodore 64 computer. Diary 64 keeps track of all appointments, schedules, important dates such as birthdays, telephone numbers and addresses, storing information in a database on cassette or disk. New ham radio software called RTTY and developed by Melbourne-based High Technology Computer Systems has been released for Vic 20, C64 or 8000 series computers. Cost is \$59. Forth language has also been released for the Commodore 64. G-Pascal is now available for the Commodore 64 together with a complete games system. The new



package, available through Gam-bit Games in Victoria features: graphics, sprites, music and sound effects, colors, internal timer and a clock.

**Further information:** Commodore Business Machines Pty Ltd, 5 Orion Rd, Lane Cove, NSW 2066. Tel: (02) 427 4888.

Enter S536 on Enquiry Card

## Free Catalogue

BURROUGHS Ltd is making available to its Australian distributors an overseas software catalogue listing more than 70 vertical market applications. The software catalogue, which lists hundreds of programs, was compiled specifically for the growing number of Burroughs B20 computer value-added distributors. Distributors wanting a free copy of the catalogue should apply to Burroughs' national distributor manager.

**Further information:** Burroughs Ltd, 30 Alfred St, Milsons Pt, NSW 2061. Tel: (02) 922 9300.

Enter S567 on Enquiry Card

## Home education

IMAGINEERING has released a range of home education software for the Commodore 64. The releases are: Kidwriter (ages 6-10) which allows children to make colorful scenes and write stories to go with them; Bubble Burst (ages 4-8, \$54.95) which helps children develop prediction, strategy and pattern-recognition skills; Trains (ages 10-adult, \$54.95) which challenges players to keep the railroad going and growing by teaching financial management and planning; Aerobics (for adults), Grandma's House (ages 4-8, \$49.95) which lets children create the perfect playhouse; and Story Machine (ages 5-9) which lets children write and animate little stories.

**Further information:** Imagineering, 579 Harris St, Ultimo, NSW 2007. Tel: (02) 212 1411.

Enter S537 on Enquiry Card

## Retail RICS

MELBOURNE software house Denman-Croft Software Pty Ltd (which says it doesn't care who copies its software) is providing all source code with each licence of its comprehensive Retail Inventory Control System — RICS. For the first quarter of 1984, a complete RICS system will cost \$500, a reduction of several thousand dollars. The user receives source code on diskettes, user's guide, system logic manual, full system listing and support. RICS, a complex system originally designed for the auto spare parts trade, tracks stock movements, generates purchase

orders, monitors the budget, prepares comprehensive stock reports and prints price tags. Written in dBase II, RICS will run on any CP/M-compatible system.

**Further information:** Denman-Croft Software Pty Ltd, Suite 11, 285 Carlisle St, Balclava, Vic 3186. Tel: (03) 527 3443.

Enter S538 on Enquiry Card

## Concurrent CP/M 86

NEC Information Systems Australia has released the Concurrent CP/M 86 single-user, multi-tasking operating system by Digital Research, for the Nec Advanced Personal Computer.

**Further information:** NEC Information Systems Australia Pty Ltd, 99 Nicholson St, St Leonards, NSW 2065. Tel: (02) 438 5344.

Enter S539 on Enquiry Card

## Personal appointment

DATAVIEW Wordcraft Ltd has appointed Personal Computer Services Pty Ltd, of Nth Sydney, as official distributor for Australia and New Zealand of Dataview's range of software programs. The first program to be released is Wordcraft, the word processing program which achieved fame on the Commodore microcomputer. Now rewritten in BCPL specifically for 16-bit machines, it is available for the IBM PC, PC XT Digital's Rainbow 50, Rainbow 100 and Rainbow 100 plus, the Sirius and the new Sirius portable, the Vicki and the Apricot. Wordcraft was originally released by Dataview in 1980 and has since sold well in excess of 10,000 copies in nine languages and is used in more than 19 countries.

**Further information:** Personal Computer Services Pty Ltd, 26 Ridge St, Nth Sydney 2060. Tel: (02) 923 2899.

Enter S540 on Enquiry Card

## Tomas Unix

TOMAS Systems has released Xenix for the Seiko Business Computer. Xenix is the Microsoft version of Unix. The company has also announced the availability of Oasis-16 on its Seiko 8600 range of business computers.

**Further information:** Tomas Systems, 30 Whiting St, Artarmon, NSW 2064. Tel: (02) 438 4233.

Enter S541 on Enquiry Card



# Thinking about a Multi-User system ...

## Look at an ICL Solution.

If you want software for

- Sales Accounting
  - Medical or Veterinary Applications
  - Inventory Control and Order Processing
  - Costing
  - Financial Modelling
  - Word Processing
  - Property Management & Trust Accounting
  - Insurance Broker Management
- Plus up to 8 concurrent uses.

**BIG Company backing and Professionals who REALLY understand your business**

**You should be talking to us**

**THINK COMPUTERS**

602 Maroondah Hwy, Mitcham, 3132  
Telephone: (03) 873 1122

**DEALER INQUIRES WELCOME**

**ICL**

PLEASE SEND FURTHER INFORMATION

NAME .....

COMPANY NAME .....

ADDRESS .....

P/Code ..... PHONE .....

Enter S002 on Enquiry Card



# COMMUNICATIONS

## EagleNet lands

EAGLE Computer has released EagleNet I, a local area network capable of expanding to 255 stations, for its IBM PC and XT-compatible computers. EagleNet I converts two or more 16-bit personal computers into a business network to share information, databases, and a host of peripherals. This LAN allows users to connect up to 255 Eagle and/or IBM PCs, including the newly introduced Eagle PC Spirit and Eagle PC Plus series. EagleNet I is based on Arcnet technology, an accepted network standard used by Datapoint, Tandy, Davong, Wang and others, and uses the same protocols used to communicate between systems in Xerox's Ethernet network. The RG-62 IBM 3270 coaxial cable, used to connect computers and peripherals within the EagleNet I network, is an industry standard. EagleMail, electronic mail software included free of charge with the network, easily ties the personal computers into an efficient information system. The EagleNet I starter kit, a complete network for two personal computers, ready to connect and use, is priced at \$3390. It includes two EagleLink I adaptor boards, one junction, network software, EagleMail I, FlexMenu, and two 6m lengths of cable. Additional EagleLink I adaptor boards cost \$1180 each.

**Further information:** Asia/Pacific Technology Marketing Pty Ltd, 200 Pacific Hwy, Crows Nest, NSW 2065. Tel: (02) 929 7699.

**Enter S521 on Enquiry Card**

## Dick's Dataphone II

DICK Smith Electronics has released a new version of its Dataphone direct-connect data modem. The Dick Smith Data-

phone II offers upgraded performance, and also includes a push-button type electronic phone. It sells for \$199. The Dataphone II offers improved demodulator phase stability and greater tolerance of Telecom line impedance variations. Features include full duplex, answer/originate operation for convenience, standard switched-network data rate of 300 baud, RS232C computer interface and "carrier detect" output and LED indication. The Dataphone II is Telecom approved.

**Further information:** Dick Smith Electronics Pty Ltd, 396 Lane Cove Rd, Nth Ryde, NSW 2113. Tel: (02) 888 3200.

**Enter S522 on Enquiry Card**

## Interface card

THE parallel serial input/output dual function interface card now available from R.F. Computer Communication allows a printer (parallel output) and modem (serial input/output) to be used simultaneously from one port in Apple or compatible computers. The PSIO offers a choice of software options, including variable baud rate selection, form width, form length, auto linefeed, linefeed mask, Xon/Xoff protocol, lowercase masking, shift key mode support, duplex mode, parity, data format, video echo mode and a slot echo mode. Graphics includes high-resolution dump of display to a graphics printer, picture rotation and enlargement. Recommended price is \$389 including sales tax. R.F. Computer Communication has also introduced a range of multi-port controllers which provide expansion of a computer's single RS232 serial port to four or more individual ports, to connect devices such as modems, printers and terminals to the host device. Each peripheral port is code-

activated and can be software configured. Each port can operate with a different configuration, i.e., different baud rates, word size, stop bits, etc. These features also allow two or more devices to communicate with the unit simultaneously.

**Further information:** R.F. Computer Communication, 2 Lawson Avenue, Frankston, Vic 3199. Tel: (03) 781 4461.

**Enter S523 on Enquiry Card**

## Sendata 2000

SENDATA Communications has expanded its range of direct-connect modems to include the multi-purpose, high-performance Sendata 2000. It features automatic answer and disconnect, selectable speeds (75, 300, 600, 1200 bps) and selectable CCITT or Bell transmissions, allowing direct access by terminal or computer to Australian and international databases and other terminals and computers. Sendata modems are designed and produced by Australian-owned Electro-Medical Engineering. The Sendata 2000 modem has been approved by Telecom.

**Further information:** Electro-Medical Engineering Pty Ltd, 69 Sutherland Rd, Armadale, Vic 3143. Tel: (03) 509 5844.

**Enter S524 on Enquiry Card**

## Apple cluster

APPLE has released the Lisa Terminal and Apple Cluster Controller in Australia. These communications products allow the Lisa personal computer to interact with most mainframe and minicomputers, including IBM and Digital Equipment Corp systems. Lisa Terminal data communications software allows the Lisa to emulate VT1000, VT52, and TTY terminals and exchange information, via modem, with computers supporting asynchronous protocols. Users can also gain access to remote mainframe computers and information services such as CompuServe, The Source, and Dow Jones News/Retrieval Service. The Apple Cluster Controller is a protocol converter that emulates an IBM 327X-type cluster controller. When used with Lisa Terminal, it enables the Lisa to communicate with IBM mainframe networks by emulating IBM 3278 Model 2 terminal functions.

**Further information:** Apple Computer Australia Pty Ltd, 37 Waterloo Rd, Nth Ryde, NSW 2113. Tel: (02) 888 5888.

**Enter S525 on Enquiry Card**

## Dateline 200

SYSTEMS Peripherals has released the Dateline 200 software communications system which allows the Apple II, II+, IIe

and compatible computers to communicate with each other or with a database via a telephone line, provided they are equipped with an appropriate modem or communications card. Designed to run on Modem Technology's Universal Data Modem 1200 and the Novation Apple-Cat II communications card in a UCSD Pascal environment, it comes complete with a manual, a software protection device and two diskettes (The Master Disk and the File Disk). Dateline is self-booting so that the user need not have the Apple II Pascal operating system. The Phone Directory System allows the user to create an unlimited number of phone directories, each of which can contain up to 127 entries. The Command File System allows users to create a file of functions which will be executed when the file name is typed.

**Further information:** Systems Peripherals, 210 Parramatta Rd, Stanmore, NSW 2048. Telephone: (02) 568 3790.

**Enter S526 on Enquiry Card**

## Cicada modem

COMPUTER Classics will market the Cicada 300 Direct Connect telephone modem in Australia. The Direct Connect can be more convenient than the acoustic coupler because it is wire-connected rather than using the telephone handpiece. The Cicada will sell for about \$200. Computer Classics also sells the Sendata 700 Series acoustic coupler for \$299. The Sendata 700 has been adapted to connect directly to Commodore 64 and Vic-20 computers.

**Further information:** Computer Classics, 11-15 Falcon St, Crows Nest, NSW 2065. Telephone: (02) 438 4866.

**Enter S527 on Enquiry Card**

## Multi-port transceiver

TIME Office Computers has released a multi-port transceiver, a compact, self-contained unit which allows up to eight devices to be attached to an Ethernet cable via a single tap which can normally support only a single device. Devices are attached to the multi-port transceiver by standard four-pair shield cables. Each cable may be up to 50m long. The transceiver, which uses Emitter Coupled Logic (ECL) to implement the Ethernet version 2.0 specification, has been developed in Australia by the research department of Time Office Computers, and is manufactured by them in Artarmon, Sydney.

**Further information:** Time Office Computers, 99 Mount St, Nth Sydney 2060. Tel: (02) 437 4355.

**Enter S528 on Enquiry Card**



Dick Smith's upgraded direct connect 300 baud modem.



# Will your child grow up to be Chairman of the Board?



Aristotle said 'give me your child from one to seven and I will give you the man.' Put simply he was saying people are products of their environment. Research confirms children brought up in an atmosphere of creativity and learning where they are encouraged to compete are the ones who get to the top.

What can a parent do to give their child that special start? To begin with you can turn off the television. And turn on the home computer. But with so many to choose from what home computer should your youngster have?

A Spectravideo is probably the perfect choice.

## **The Spectravideo Computer.**

Spectravideo Computers are the most powerful systems in their class. Unlike the Commodore VIC 20, The Tandy TRS 80 and the Sinclair Spectrum, the Spectravideo is capable of almost infinite expansion. The 318 for example starts with 32K of Read Only Memory. And that's over twice that of the Spectrum and four times the more expensive Tandy.

What's more it can be expanded to 144K which is twice that of the Apple II, which is almost five times as costly. And the Spectravideo 318 is only half as powerful but as versatile as the 328.

## **The world's most understandable computer.**

The Spectravideo Computer System has been created for first time computer users. Using CP/M and Microsoft Basic and complete with a comprehensive do-it-yourself manual the Spectravideo is probably the world's most understandable computer!

## **Work. And Play.**

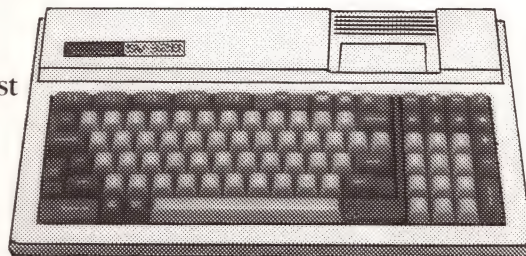
There is an infinite variety of programs available for the Spectravideo. Educational, scientific, financial and of course there's a range of games – including Coleco Vision. And to make the 318 even more fun it even has its own built-in joystick.

## **The better computer company.**

Spectravideo Computers are distributed throughout Australia by Videoactiv Electronics, one of Australia's most professional computer companies.

**Just \$399.**

Yes! The powerful, versatile Spectravideo range of computers from Videoactiv Electronics costs from just \$399. It's not a lot to pay to see your youngster become Chairman of the Board.



# **Spectravideo** **The world's most understandable computer.**

See the amazing Spectravideo at your nearest dealer or ring Melbourne 537 2000, Sydney 328 1190, Brisbane 369 0496, Adelaide 211 7766, Perth 328 5299, Tasmania (003) 31 8551

Brand Management VA 407

Enter S009 on Enquiry Card



## Anchor Pads

ICL has signed an agreement with Anchor Pad (Australia) Pty Ltd to distribute the Anchor Pad security system through its Data-set operation. The US-designed Anchor Pad effectively prevents the theft of desk-top equipment.



A variety of sizes and styles of Anchor Pads are available along with a special three-tiered computer security system designed to hold each component of a desk-top computer safely in place. The Anchor Pad can be mounted on practically any surface without drilling holes or damaging office furniture. Costs range from \$68 to \$500.

**Further information:** International Computers (Australia) Pty Ltd, 14 Rodborough Rd, Frenchs Forest, NSW 2086. Telephone: (02) 452 9900.

Enter S542 on Enquiry Card

## Robot dealer

COMPUTERWAVE Pty Ltd, of Sydney, has been appointed the first authorised Australian dealer for RB Robots, a US robot manufacturing company. The RB5X (the X stands for Experimental Robot) has two drive motors to turn it on its own circle, under the control of onboard software or a control panel and has three sensing methods: contact bumpers, sonar and infrared sensors. The RB5X also has a hooter and an optional speech synthesiser. Programs can be stored in the onboard, 8K-bytes of RAM, expandable to 24K-bytes. Programs can be loaded by the robot remembering moves, or through most communications software. Programming language is Tiny Basic, an abridged form of Basic with only limited variables, which is best suited for Robot Control. The machine is equipped with Alpha, Beta and Gamma self-learning software based on Evolutionary Adaptive Machine

Intelligence (EAMI), a term coined by hobby robotics author David Heiseiman. RB5X is expected to retail in Australia for \$2999, sales tax included.

**Further information:** Computer-Wave Pty Ltd, 325 George St, Sydney 2000. Tel: (02) 29 1631.

Enter S543 on Enquiry Card

## Hills servicing

HILLS Industries has established an Australia-wide servicing organisation for microcomputers. The new division provides servicing facilities in all States. Its Hills Telefix division is also the largest independent television, video recorder and audio service organisation in Australia with service centres in Brisbane, Sydney, Newcastle, Canberra, Melbourne, Adelaide and Perth.

## Mail order

MICROMAIL, a new mail order company, marketing computer equipment, has been established in Sydney by Colin Middleton and former microcomputer marketing executive Justin Beck. Beck was formerly marketing development manager with Computerland Australia. Micromail markets hardware, software and peripherals to home/personal consumers. The company maintains a 24-hour service.

**Further information:** Micromail, 44 Merrivale Rd, Pymble, NSW 2073. Tel: (02) 44 1029.

Enter S544 on Enquiry Card

## Reduced disks

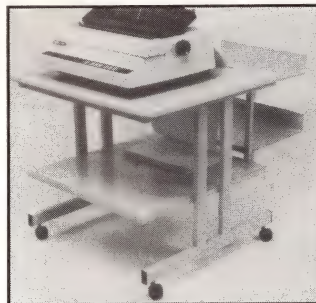
MICROSOFT has announced its Site Licensing Plan, a program to allow its software users with multiple workstations in one location to buy duplicate products at reduced prices. Under the plan, instead of having to buy a complete product for each workstation, the user can buy multiple copies of diskettes and manuals at reduced prices, after a minimum of five complete products have been bought. The number of disk sets and manuals a user can have is based on the square of the number of complete products bought. So if they buy five of any Microsoft software package, they are entitled to buy up to 20 additional manuals and disk sets (25 total) at far lower cost than the complete package.

**Further information:** Microsoft Pty Ltd, PO Box 98, Terrey Hills, NSW 2064. Tel: (02) 450 2522.

Enter S545 on Enquiry Card

## Printer stands

VICTORIAN computer office furniture equipment manufacturer Data Decor has released the WP400 series of printer stands designed for offices. The range is ideal for all makes of desk-top word processing and dot-matrix computer printers. Both open and cupboard types have cut-through paper slots for bottom-fed printers, and removable paper feed and catcher trays at rear. The



enclosed unit can be used for storage of word processing supplies and print-outs. The open unit also has undershelf paper storage. Standard top size is 810mm x 760mm, but this can be varied on request. All units are of powder-coated steel construction, and tops and sides (on the enclosed units) are available in a range of colors. All products can be ordered with either castor wheels or with adjustable feet.

**Further information:** Data Decor Pty Ltd, Waterloo Place, Richmond, Vic 3121. Tel: (03) 428 3842.

Enter S546 on Enquiry Card

## Power monitoring

SME Systems Pty Ltd has designed and developed a power supply monitoring unit to detect and pinpoint the location of electricity supply faults and blackouts. Designed primarily for power supply authorities and industry in Australia, it is suitable for virtually any power supply organisation in the world. A basic system comprises SME Datalog units and appropriate sensing devices at each substation, and an SME Unicorn computer at the organisation's main power control centre.

**Further information:** SME Systems Pty Ltd, 22 Queen Street, Mitcham, Vic 3132. Telephone: (03) 874 3666.

Enter S547 on Enquiry Card

## Golden Joystick

MELBOURNE House, publisher of books and software for home computers, has received four awards from a total of five categories at the recent Golden Joystick Awards in the UK. *The Hobbit* won Best Strategy Game of the Year for 1983, and was runner-up as the Game of the Year. *Penetrator* was voted run-

ner-up in the Best Arcade Game of the Year category. Overall, Melbourne House was hailed as one of the top four software publishers for the year. The awards were compiled by *Computer and Video Games Magazine* from votes sent in by thousands of home computer users.

**Further information:** Melbourne House, (Australia) Pty Ltd, Suite 4, 75 Palmerston Cres, South Melbourne 3205. Telephone: (03) 690 5336.

Enter S548 on Enquiry Card

## For information

THE Freedom of Information Act 1982 allows you to secure government information and assistance through the relevant department's Freedom of Information Officer. To assist you in reaching the right officer for the right information or assistant, Anstat has introduced the National Guide to Government Departments and Services, an easy reference piece which points you to the right section or division of government.

**Further information:** Anstat Pty Ltd, 100 Queen St, Melbourne 3000. Tel: (03) 67 5444.

Enter S549 on Enquiry Card

## BASF range

MECOM, of North Sydney, now distributes the complete range of BASF storage media in NSW. A high-density diskette, the Qualimetric Flexidyse, is now available for this and the next generation of 5¼in and 8in disk drives. BASF has developed new protection from abrasion and corrosion for the diskette's thin coating layer. A new jacket has also been designed to keep debris away from the media surface to ensure precise media-to-head alignment.

**Further information:** MeCom Pty Ltd, Suite 2, 29 Berry St, Nth Sydney 2060. Tel: (02) 92 1133.

Enter S550 on Enquiry Card

## PRO joysticks

CONCEPT Audio has released the PRO 5000 competition pro joystick manufactured by Coin Control Inc, of Illinois, USA. The PRO 5000 is covered by a two-year unconditional guarantee. The PRO 3000 and PRO 1000 joysticks were released in the first week of March. The PRO 1000 sells for \$19.95 and is compatible with all Atari and Commodore games systems, with adaptors now available for use with Colecovision and Texas Instruments machines. The PRO 3000, a trigger-type joystick, sells for \$29.95.

**Further information:** Concept Audio Pty Ltd, 17/98 Old Pittwater Rd, Brookvale, NSW 2100. Tel: (02) 938 3700.

Enter S551 on Enquiry Card



# MORROW MICRO DECISION

## COMPUTER SPECIFICATIONS.

- 280A CPU operating at 4MHz.
- 64K RAM + 4K ROM (MD2 MD3) 128K MD11 + 8K ROM.
- 5¼" Floppy Disc Drives (400K MD2 800K MD3)
- 5¼" Hard Drive 110 Meg Formatted (MD11)
- 2 x RS232 Serial & IX Centronics (MD2, MD3) + H.S. Port MD11
- RFI Inhibiting Fabricated metal case with moulded plastic front panel.

## SOFTWARE SPECIFICATIONS.

- CP/M 2.2 Operating system
- Wordstar word processing MD2, MD3.
- New Word MD11
- Correct-It spelling checker
- Logicalc Electronic Spreadsheet
- Personal Pearl Data Base
- Quest Bookkeeper (Not available with MD2)

MORROW DESIGNS THE  
MICRO DECISIONS  
TO PROVIDE THE BEST  
VALUE FOR YOUR DOLLAR  
IN THE PC MARKET



TOTAL HARDWARE INC TERMINAL & 80 cps PRINTER + TOTAL SOFTWARE PACKAGE  
+ TOTAL WARRANTY + TOTAL SERVICE + TOTAL COMMITMENT

TOTAL PRICE	MD2 \$2740*
	MD3 \$3385*
	MD11 \$4990*

TURN TO **MORROW** TODAY

= TOTAL SATISFACTION

\*Plus Tax if applicable

**THE PROFESSIONALS CHOICE.**  
FULLY SERVICED THROUGHOUT AUSTRALIA BY YOUR MORROW  
DISTRIBUTOR

IMPORTED & SUPPORTED BY  
AUTOMATION — STATHAM PTY LTD  
47 Birch Street,  
Bankstown NSW 2200  
(02) 709 4144

A FULL SERVICE MORROW DEALER SINCE 1976  
TRADE ENQUIRIES WELCOME



# RAM RAPID ACCESS MARKETPLACE

## ACCESSORIES AND DISKETTES

### DE VERE COMPUTER ACCESSORIES (DCA)

10th Floor, 124 Albert Road,  
South Melbourne, Vic. 3205.

Telephone: (03) 690 8955.

*Offer a full range of media  
supplies and accessories.  
Australian distributor for Le Disc  
flexible diskettes.*



### PRINTER USERS. DON'T WASTE YOUR TIME AND MONEY. USE A GLW PRINTER BUFFER

Don't waste time and money waiting for  
your printer to finish printing before you  
can use your computer again. With a GLW  
printer buffer you can print and compute at  
the same time.

Parallel centronics and RS232 serial buffers  
are available. Standalone buffers complete  
with power supply and buffer cards that fit  
inside certain printers are available. ALL  
buffers are economically  
priced.

### G.L. WRAGG

4 Pryton Court, Balwyn, Vic. 3103.  
Ph: (03) 890 6918 or (03) 420 2444  
and ask for Graham Wragg

### 5 1/4" FLOPPY DISC DRIVE

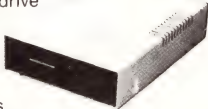
Single/Double Density

• Half height (41.5mm)

• Brushless direct drive  
motor system

• Compatible  
with Apple II  
and other  
major computers

**\$298.80**  
inc. tax



RADIO PARTS GROUP  
562 Spencer St.  
West Melbourne 329 7888  
1103 Dandenong Rd  
East Malvern 211 8122

### MICRO COMPUTER REPAIRS

*Specialising in*

APPLE — IBM PC's  
CUSTOM DESIGN and INTERFACING

Experienced, qualified engineers.

**UNIQUE MICRO DESIGN PTY LTD**

**Phone: (03) 233 4817**

**4 Robinlee Avenue  
East Burwood 3151.**

## BOOKSHOP

### computer bookshop



Inside Pocket & Tech Books  
downstairs, 137 King Street  
Sydney. 233 1944



### COMPUTER GALERIE BOOKS

*The leading Computer book  
shop in the HEART OF  
COMPUTER CITY.*

Division of Computer Galerie  
(P.C. Sales) 66 Walker Street,  
NORTH SYDNEY 2060.  
Telephone: (02) 929 5497.

To place your ad in  
RAM call:

Pat: (02) 439 5133

Laurie: (03) 690 2933

## BUSINESS SYSTEMS

### BUSINESS SYSTEMS

Commercial  
and Professional  
Microsystems



9th Floor, 505 St Kilda Rd, Melbourne.  
3004. Telephone (03) 267 4755

Complete low-cost: CP/M Based Business  
Systems, for Hotel, Motel, Restaurant, Real  
Estate, Service Station, Insurance, Farming,  
Medical, Dental, etc., Businesses.

Sole distributors for Conqueror Computer.

## CONNECTORS

### EAST WEST ELECTRONIC DISTRIBUTORS PTY LTD

Authorised distributor for  
Australian AMP, Specialising in  
"D" connectors, CPC and heat  
shrink tubing cable.

Assemblies to your specifications.

**117 Smith Street  
FITZROY VIC 3065  
Telephone: (03) 689 7233**

## CONTRACT PROGRAMMERS



### SPAN COMPUTER CONTRACTS

Contract programmers,  
systems analysts,  
consultants,  
project management.

**Span Australia Pty Limited**  
56-62 Berry St, North Sydney 2060  
Telephone (02) 929 0500

## EDUCATION



Technical Seminars,  
Workshops on UNIX,  
PICK, C Language,  
ADA & other specialised topics  
presented by international ex-  
perts in these fields.

**Span Australia Pty Limited**  
56-62 Berry St, North Sydney 2060  
Telephone (02) 929 0500

**Ads placed in  
RAM  
are cost effective**



# RAM RAPID ACCESS MARKETPLACE

## FURNITURE SUPPLIES

Computer furniture and accessories  
specialising in computer desks and  
acoustic covers.

### COMPUCARE PTY LTD

2nd Floor, 98 Bay Rd, Waverton,  
NSW 2050. Telephone (02) 922 5199.

## INSURANCE

Specialist in computer insurance  
both personnel and commercial.

### ELMTECH PTY LTD

PO Box 117, Willoughby NSW 2068.  
Telephone (02) 92 4175.

## MAILING HOUSES

**Complete mail processing services of  
computer addressing, file creation, bur-  
sting, folding & inserting of statements,  
invoices, letters, etc., with max. postage  
savings.**

#### DATAMAIL GROUP

17 Barclay Street,  
Marrickville NSW 2204.  
Phone: (02) 516 3833.



## MEDIA COPYING

- \* Copying of most formats
- \* Reasonable rates
- \* Quick turn around

#### K.J. Computer Services

4/90 Northcliff Ave,  
Edithvale 3196.  
Ph: (03) 772 0781, (03) 772 9177.

## PERSONNEL RECRUITMENTS



### WARWICK WOODWARD ASSOCIATES

Permanent recruitment of  
data processing staff-  
advertising campaigns-  
media selection-shortlisting

**Span Australia Pty Limited**  
56-62 Berry St, North Sydney 2060  
Telephone (02) 929 0500

**Ads in RAM cost from  
a low \$430 for  
12 months**

## SERVICES

### ACS

**SERVICE COSTS TOO HIGH??  
STAFF TOO EXPENSIVE??**

ACS is a specialist service-only independent  
organisation where personalised and respon-  
sible service is available to end-users and to  
companies who would not be in a position to  
maintain and continually upgrade service  
facilities.

Service contracts available.

Matrix & Daisy printers

\* Qume, Diablo, Datasouth

Terminals

\* Televideo, Freedom, Ampex

Board repair facilities.

**ADDITIONAL COMPUTER SERVICES PTY LTD**  
(02) 524 6317

Mr Floppy Pty Ltd. Tel: (02) 939 1800  
9 Ada Ave, Brookvale 2100 Tlx: AA73775

SPECIALISTS IN THE REPAIR OF ALL POPULAR  
BRANDS OF FLOPPY & HARD DISK DRIVES.

## SCARLAN COMPUTER SERVICES

24HR turnaround on  
APPLE, OSBORNE, ATARI AND TANDY

We also repair PRINTERS  
SOFTWARE CONSULTING

Soon to be IBM

**PHONE ARMEN or FELIX (02) 427 0314**

## SOFTWARE

### Software Solutions

**Software tools experts . . .**

NUCLEUS is a program generating  
system for data creation, retrieval,  
manipulation and reporting which  
enables the production of new cus-  
tomised applications to be produced  
by non-technical staff. Programs  
automatically generated by NUCLEUS  
as the user interactively responds to  
simple questions at the terminal.

SOFTWARE SOLUTIONS  
(Australia) PTY LTD

144 Pacific Highway, North Sydney NSW 2060.  
Telephone (02) 92 0603.

**CONTACT US TO FIND YOUR NEAREST DEALER.**

### total solutions

**10/281 Pacific Hwy,  
NORTH SYDNEY  
(02) 923 2466**

Market leaders in MS-DOS software for the  
Wang PC.

Save your investment in electronic  
typewriters by letting us interface your  
existing machine to a Wang professional  
computer.

Ring for details on the exceptional  
Juki letter quality printer only \$995,  
including tax.

**AUTHORISED**

**WANG**

**DEALERS**

**Select your supplier  
from the ads in this  
section**

## SOFTWARE SUPPLIERS

### ARCHIVE COMPUTER SERVICES SYDNEY PTY LTD

Shop 13, Mount Street Plaza  
Cnr Mount and Walker Streets,  
NORTH SYDNEY 2060. Ph: (02) 923 1200



Suppliers of retail & wholesale soft-  
ware for personal computers, includ-  
ing spreadsheets, wordprocessors,  
compilers, databases, etc., for CP/M,  
MS-DOS, PC-DOS, et al.

We also supply a range of applications  
software for Printers, Architects,  
Builders and Clubs, etc.

Software is supplied on a wide range  
of disc formats, and a disc format  
conversion service is also available.



# RETAIL WINDOW

## BALGOWLAH, NSW

**AB Office Electronics**  
385 Sydney Rd. Balgowlah N.S.W. 2093  
Telephone 949 7195

*Authorised Brother Dealer  
of electronic typewriters,  
letter quality printers,  
Mitsui computer systems.*

MicroSpooler  
memory buffer.  
Wholesale and Retail.  
Suppliers and service on all  
types of machines.

## HORNSBY, NSW

### ELJEN

COMPUTER AND OFFICE SUPPLIES

16 Hunter Street, Hornsby, N.S.W. 2077  
Phone: 477 6602

**AUTHORISED HITACHI DEALER**

8 & 16 Bit Systems  
FBS & Attache Business  
Software  
Verbatim Diskettes  
"Rediform" preprinted  
stationery  
Canon Personal Copiers

**SHOP LOCALLY**  
Select your supplier  
from the ads in  
this section

## BOX HILL, Victoria

**Computerland®**

IBM HYPERION  
DIGITAL APPLE

899 Whitehorse Road  
Box Hill  
(03) 890 0468

## EAST MALVERN, Victoria

CONSULT

**ELSTON MICRO**

For — AED Universe Super Computer  
II and the portable Chameleon, plus full  
software support for your application.

43 Waverly Road,  
East Malvern 3145.  
Phone (03) 211 5542.



# RETAIL WINDOW

## MORE BUYERS CAN NOW LOOK INTO YOUR SHOP

This low cost, easy reference directory provides all computer  
retailers with immediate access to buyers in your area.

## RETAIL WINDOW — THE SPECIAL DIRECTORY FOR RETAILERS ONLY

Your listing will be placed beneath your city, town or suburban  
location ensuring quick and easy reference.

Don't delay, you may be missing vital sales right now.

To place your ad telephone:

Pat: (02) 439 5133

Winkie: (09) 384 5856

Laurie: (03) 690 2933

George: (07) 371 6557

Jim: (08) 223 4631.

Or send typewritten  
copy on your  
letterhead to:

AUSTRALIAN MICRO  
COMPUTERWORLD  
**COMPUTERWORLD**  
PTY LTD  
37-43 ALEXANDER ST  
CROWS NEST 2065



# APPLICATIONS

## Hotel bookings

THE Southern Pacific Hotel Corp has embarked on the first step of its planned national computer network by installing a computer reception and reservations system at the Wynyard Travelodge in Sydney. The signing in of the first guests on the Travelodge's ICL DRS 20 Model 50 represents the first stage of an online front-office system network which will link 15 of the company's largest hotels around Australia. The system also provides management with more accurate information as to guests' spending and special requirements.

**Further information:** ICL Australia, 14 Rodborough Rd, Frenchs Forest, NSW 2086. Tel: (02) 452 9900.

**Enter S507 on Enquiry Card**



ICL executive (centre) shows the new computer to Travelodge staff.

## Drug testing

TESTS to measure the effects of alcohol, marijuana and other drugs on individuals' attention, concentration and performance skills being conducted at Sydney University, have been improved with the use of Apple personal computers. The tests are being conducted at the university's psychopharmacology research unit at Rozelle Hospital by Dr Greg Chesher and Mrs Helen Dauncey. The Rozelle staff believe the tests are the first to initiate the development of a comprehensive battery of psychomotor tests based on a microcomputer system. Previously, a number of individual testing machines were used to measure reactions before and after the subject had been given a specific quantity of alcohol or other drug. Now Kim Horn of the research unit has written several programs for the Apple to enable it to replace these machines and, at the same time, provide the unit with far more flexibility in the design and choice of the tests. The unit has five Apple IIe computers for testing, the hardware of which Horn had modified

slightly to suit the tests. To run specially written programs, Horn has designed and built an interface card for the Apple which has two clock timers and the facility to run a cassette recorder with the testing — an addition the unit plans for the near future. Horn has also built a special test-keyboard which has only the keys required to answer the questions for the tests.

**Further information:** Apple Computer Australia Pty Ltd, 37 Waterloo Rd, Nth Ryde 2113. Tel: (02) 888 5888.

**Enter S508 on Enquiry Card**

## Wicat contracts

THREE Melbourne councils and a leading statutory authority have announced Wicat computer contracts worth more than \$500,000. In the selection of their computer facilities, Port Melbourne, Williamstown and Croydon Councils, as well as the Dandenong Valley Authority, have installed Wicats running Locas, an integrated local authority software package originally developed by Information Sciences Australia and now fully owned, supported and installed by Local Authorities Information Systems. Designed specifically to handle the processing and information requirements of local authorities, Locas was developed to assist local council executives with all facets of engineering, planning, revenue raising, community services and management reporting. Port Melbourne, Williamstown and the Dandenong Valley Authority chose the Wicat System 200, and Croydon chose the Wicat 155.

**Further information:** Wicat of Aust Pty Ltd, 88 Christie St, St Leonards, NSW 2065. Tel: (02) 438 2911.

**Enter S509 on Enquiry Card**

## Navy archives

THE first computer contract under the Federal government's new Preferred Panel arrangement for computer suppliers has been awarded to Archives Computers for an installation at the Department of Navy's publications section. Ordered by the Department of Administrative Services, the system is a Discovery microcomputer with four terminals and 120M-bytes disk and tape storage capacity. The system, based in Canberra, is being used to maintain and index and cross-index the 20,000 or more different equipment publications produced by the Navy's publications

section. Some in-house software has been added to provide limited access to some of the data for authorised personnel.

**Further information:** Archives Computers Australia Pty Ltd, 163 Clarendon St, Sth Melbourne 3205. Tel: (03) 699 8377.

**Enter S510 on Enquiry Card**

## Critical Path

DOMAIN Micro-Systems (Aust) Pty Ltd, a Sydney company which carries out specialised technical work for Federal government departments, mainly the Royal Australian Navy, has developed a program using Sanyo's MBC 1000 microcomputer to assist in Critical Path and performance evaluation techniques. Domain is involved in projects such as marine navigation lighting, civil aviation and building design. The company takes its direction from Defence headquarters in Canberra. The Critical Path and PERT (Performance Evaluation Review Technique) programs were conceived to control projects and contain costs, notably for the Polaris and NASA projects where there were no over-runs in time or costs.

**Further information:** Sanyo Data Systems, 127 Walker St, Nth Sydney 2060. Tel: (02) 929 4644.

**Enter S511 on Enquiry Card**

## Big wheels

DATASCAPE has completed a \$450,000 deal with international tyre company Goodyear. Datascape, a privately-owned Sydney company, beat strong overseas competition to supply 130 printers and attachments to Goodyear as part of a major computer package. Over the next few months, Goodyear will introduce a retail store management system (RSMS) into its 116 service centres throughout Australia, becoming the first auto-care company in Australia to become fully computerised. Using NCR 2950 terminals and NEC Spinwriter printers, Goodyear's new system will automatically update inventory, financial records, cash control and accounting ledgers as each transaction is completed.

**Further information:** Datascape Int Pty Ltd, 33 Grosvenor St, Neutral Bay Junction, NSW 2089. Tel: (02) 909 1233.

**Enter S512 on Enquiry Card**

## Onboard navigator

INSTRUMENT specialist VDO is investigating the release of Australia's first commercially available onboard navigation system for cars and trucks. The system, in the final stages of development in West Germany, helps drivers plot the most direct route across cities, and warns when they are

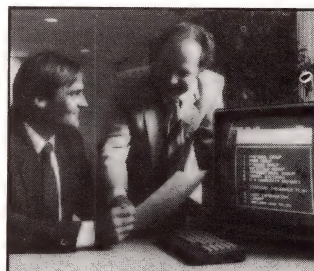
moving away from their destination in an onboard computer. A dashboard-mounted display then shows a constantly updated read-out of the direction of travel and distance from the destination and registers any variations from the course. The driver need only pass a light cursor pen over the street directory co-ordinates at the start of the journey, and monitor the gauge occasionally to find the destination. The VDO Citypilot, which uses a geomagnetic flux-gate sensor coupled to a sophisticated evaluation program stored in a microprocessor, is planned for introduction to OEMs in 1985.

**Further information:** VDO Australia, 115 Northern Rd, Heidelberg West, Vic 3081. Tel: (03) 450 3209.

**Enter S513 on Enquiry Card**

## National Videotex

AUSTPAC has now been adapted to simplify use by Videotex terminals following development work involving Computer Power, Telecom Australia and Elders IXL. This development enables the immediate establishment of national Videotex networks before Telecom introduced its Viatel gateway later this year. Users with Videotex terminals with simple numeric keypads can originate calls through Austpac and access Videotex host computers.



Executives for Computer Power and Elders IXL view the Videotex system.

## On-line caravans

JAYCO, an Australian caravan manufacturer, has signed a contract for MAI Australia Information Systems computer equipment. The equipment involved is MAI's Model 210, with 21M-bytes of disk storage, four screens and two printers along with a range of accessories. The installation is expected to be functional at Jayco's headquarters at Noble Park, Melbourne, within two or three weeks and will replace an existing Qantel system.

**Further information:** MAI Australia Information Systems, 47 City Rd, Melbourne 3000. Tel: (03) 61 3861.

**Enter S519 on Enquiry Card**



## Local BBC micros

BARSON Computers and Acorn Computers International have reached an agreement that will see BBC microcomputers manufactured in Australia. The decision was reached in Melbourne during the recent visit to Australia of Owen Maddock, international sales manager of Acorn. Barson said that a final decision had not been made on a factory location, although strong representations had been made from a number of States, particularly Tasmania and Western Australia. The BBC microcomputer has been available to Australian schools since early 1981 and is approved by State education authorities in all States except Victoria.

**Further information:** Barson Computers Pty Ltd, 335 Johnston St, Abbotsford, Vic 3067. Tel: (03) 419 3033.

**Enter S557 on Enquiry Card**

## Magmedia precision

MAGMEDIA Pty Ltd has begun manufacturing Xidex precision disks at new premises at Gladesville, NSW. Last November, Magmedia became sole Australian distributor for Xidex disks, produced by Xidex Corp of Mountain View, California.

**Further information:** Magmedia, 28 Buffalo Rd, Gladesville, NSW 2111. Tel: (02) 816 3222.

**Enter S558 on Enquiry Card**

## Classic re-organisation

COMPUTER Classics, has re-organised its NSW sales team. Heading the team is sales manager Ray Firth. Other appointments include David Porter and Joanna Mackiewicz, whose responsibilities include sales and support services for both Commodore consumer products and Computer Classics computer software and accessories. Porter will service Sydney's north and north-western suburbs and the Central Coast, North Coast, and Hunter region. Mackiewicz will cover the South Coast, Central-Western and Riverina regions, together with the eastern, southern and south-western suburbs of Sydney.

## Eracom promotion

GOLD Coast computer manufacturer Eracom has announced the promotion of Eddie Boyes to national sales support manager, to be responsible for a team involved in customising Eracom's range of data encryption pro-

ducts and information systems to meet specific market needs. Boyes has a background in project management of systems and applications development software, and has been employed by Eracom as applications development programmer, before which he was with Hartley Computers.

## Address change

THE Hitachi range of computers is now distributed in Australia by Nissei Sangyo Co Ltd, at 200 Pacific Highway, Crows Nest, NSW 2065. The telephone number is (02) 923 1522.

## Sub-contracting

CENTRE Industries, best known to microcomputer users as the manufacturer of the Cicada 300 and 300T data modems, has announced its availability as a sub-contractor for the manufacturer of electronics and telecommunications assemblies, offering skilled assistance in design, product development and production control, but with a substantial labor cost-reduction potential.

**Further information:** Centre Industries, PO Box 184, Brookvale, NSW 2100. Tel: (02) 451 5555.

**Enter S559 on Enquiry Card**

## Hobart Rainbows

THE University of Tasmania in Hobart has bought two Digital Equipment VAX-11/750 central computers and 24 Rainbow 100 personal computers to meet its educational and research needs. One VAX will be used entirely for scientific research, especially in the field of radio-astronomy, and will also be used to communicate with the radio-physics division of the CSIRO in the Sydney suburb of Epping and at Parkes in central-western NSW. The second VAX will be used primarily for teaching third-year students in the faculties of science, economics and arts. Twenty of the Rainbow 100 PCs, running on UCSD, will be used in standalone capacity to teach introductory programming to first-year students, across a range of degree courses, while the four remaining Rainbows will be used by other departments including mathematics and economics.

**Further information:** Digital Equipment Corp (Australia) Pty Ltd, Northern Tower, Chatswood Plaza, Railway St, Chatswood, NSW 2067. Tel: (02) 412 5252.

**Enter S560 on Enquiry Card**

## Mainframe specialist

B.S. MICROCOMP has appointed Michael White as a technical support specialist. He will be in charge of projects encompassing mainframe communications, local area networks, Videotex and point-of-sale applications. In his previous position White was a specialist in communicating the IBM PC to mainframes at ACI.

## Lainer takes over

FOLLOWING agreement with Datronics Graphic Systems Ltd, Lanier (Australia) Pty Ltd has taken over the marketing of the Harris range of computer terminals throughout Australia. The move follows the merger last August between Lanier and the Harris Corp. The range of Harris products Lanier will market includes 9200 online interactive terminals, 160 RBT and DDP terminal systems and the Mind DDP system. Datronics was previously the sole agent for this range of products in Australia, and will continue to market the Harris range of printing and publishing products. Four Datronics staff involved with the Harris range have transferred to Lanier, and are based at the company's

headquarters in Sydney.

**Further information:** Lanier (Australia) Pty Ltd, 296 Burns Bay Rd, Lane Cove, NSW 2066. Tel: (02) 428 1233.

**Enter S561 on Enquiry Card**

## Attache-IBM deal

THE first acquisition agreement of IBM Australia's newly formed Software Development Support Centre (SDSC) has been finalised with local supplier Attache Software. The SDSC was formed late last year to expand IBM's local activities. The agreement is for the supply of seven commercial accounting systems for the IBM PC and PC XT and includes the following modules: accounts receivable (debtors), inventory control (stock), invoicing/sales analysis, accounts payable (creditors) and general ledger. Two business packs which provide integrated versions of the modules are also included. Under terms of the agreement, IBM will depart from normal marketing practices and distribute the modules as "vendor logo" programs, meaning the programs will retain the Attache logo.

**Further information:** IBM Australia Ltd, 168 Kent St, Sydney 2000. Tel: (02) 234 5678.

**Enter S562 on Enquiry Card**



Attache's John Winter (left) with SDSC director Frank Barr-David.



## Datascope moving

COMPUTER peripherals and instrumentation company Datascope is moving to new premises, 44 Avenue Rd, Mosman, as of April 1. Datascope's new 560 sq metre headquarters will feature a large service and engineering support centre, store room and display area. The telephone number is (02) 969 2699.

## New Yankee

THE Yankee Group has appointed Graeme Philipson as senior researcher. He will be responsible for the company's Australian research operations, including the preparation of industry reports and the new Yankee Group Australian computer industry newsletter. Mr Philipson has a background in microcomputer sales and journalism and was founding editor of The Australian Apple Review.

**Further information:** The Yankee Group, 158 Avoca St, Randwick, NSW 2031. Tel: (02) 399 8200.

Enter S563 on Enquiry Card

## Peachtree plan

FOLLOWING the appointment of Johnston Brown & Associates as sole Australian distributor of its range of microcomputer software, Peachtree Australia plans to cease

direct sales and support operations this year. Peachtree Australia, a wholly owned subsidiary of Management Science America (MSA), was formed last year to establish a Peachtree presence in Australasia. Peachtree Software will now return central support to the UK-based international operation.

**Further information:** Management Science America, 100 Miller St, Nth Sydney 2060. Telephone: (02) 929 0711.

Enter S564 on Enquiry Card

## EDP expansion

PRICE Waterhouse Associates has expanded its EDP consulting services by appointing several specialist consultants. Barry Nash has been appointed as a senior consultant, responsible for helping clients to develop data processing strategic plans and advising them on policies for using computers within their organisations. Nash is an electronics and communications engineer and is a member of the Australian Computer Society. Guy Gable has been appointed a consultant in PWA's data processing division. Gable has extensive data processing and management experience and has recently completed his MBA at the University of West Ontario, Canada.

## Microsoft team

MICROSOFT has brought Lisa Helina from its US head office to be part of the Australian sales and support team. Helina has been with Microsoft USA since 1980, and has since established the international order processing department at Microsoft USA. Kathryn Davis has also been appointed to the sales and support team. Davis worked for ICL in Australia and Digital Equipment in the UK before joining Microsoft.

**Further information:** Microsoft Pty Ltd, PO Box 98, Terrey Hills, NSW 2064. Tel: (02) 450 2522.

Enter S565 on Enquiry Card

## Software coup

A MICROCOMPUTER program and report generator called Nucleus, developed by a British company owned by two Australians, has taken out this year's prestigious British RITA Award for Software Product of the Year. Nucleus, a Basic code generator was developed by Compact Software, whose joint directors, Del and Peter Bronson, were originally from Queensland. Nucleus is available in Australia from Software Solutions (Australia) Pty Limited. Five major components — system definition creation, file definition creation, printing of file

definitions, creation of file update programs and creation of report programs — make up the system. The package is suitable for a wide range of microcomputers, including the IBM PC, running on CP/M, CP/M 86, MS/DOS and IBM's PC/DOS operating systems.

**Further information:** Software Solutions (Australia) Pty Ltd, 6th Floor, 144 Pacific Highway, Nth Sydney 2060. Tel: (02) 957 6211.

Enter S566 on Enquiry Card

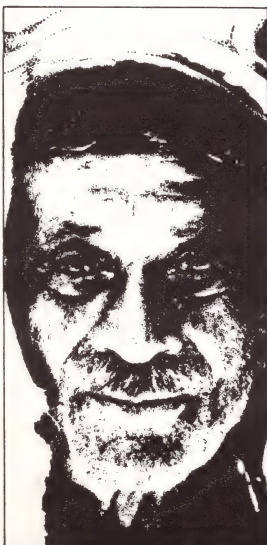
## Commodore ads

COMMODORE Business Machines has launched a multi-million dollar advertising campaign to increase sales. Commodore's advertising strategy, developed by Beeman, Mayrhofer & Stott agency in Sydney, uses the theme "Are you keeping up with Commodore . . . Commodore's keeping up with you". The agency has developed a jingle, by Jeff and Jenny Ayling of WAM Music, who originated the P&O and Tip Top jingles. Telemark shot the television commercials which show people using Commodore computers in everyday situations.

**Further information:** Commodore Business Machines, 5 Orion Rd, Lane Cove, NSW 2066. Tel: (02) 427 4888.

Enter S575 on Enquiry Card

# TALK TO YOUR CLIENTS IN ANY LANGUAGE.



Application software is a word game. The real meaning is that if your client changes his micro software costs start all over again because most software is not portable from system to system.

The Conqueror Transcriptor is a format conversion machine which will give you that service edge your clients are looking for.

Discuss the wide range and scope the Transcriptor can give your store now, at under \$5k you owe it to yourself to get the facts.

A Transcription service is also available.



**Speak your kind of language.**

Commercial and Professional Microsystems.  
9th Floor, 505 St. Kilda Road,  
Melbourne 3004. Tel. (03) 267 4755.

Brand Vic. CP804.

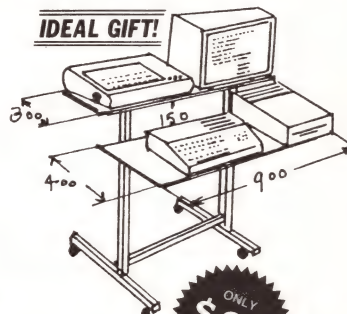
PRESENTING

# EASY DESK

THE LOW COST MOBILE COMPUTER DESK

*A quality product at a price you can afford.*

- Made in AUSTRALIA
- Easy assembly
- For use in the home, office at work or in the class room
- Packed in cardboard box
- Laminated in teak
- Sturdy steel construction
- Solid castors
- Courier delivers to your door
- Dealers' inquiries welcome
- Cheques, Bankcard
- Money orders, payable to



## HOME COMPUTERS

160 Main Road (Burwood Hwy),  
Upper Ferntree Gully, Vic. 3156.  
Telephone (03) 758 2124.

Name .....  
Address .....  
.....State .....Postcode .....  
Bankcard .....Signature .....

☐ Cheque enclosed ☐ Bankcard

Enter S007 on Enquiry Card



# EDUCATION

## Merlan series

MASTERY Education Pty Ltd, which produces computer software for use in education, has introduced to Australia the Merlan Micro Series from Canada. Winner of the Best Microcomputer Software of the Year Award — 1982, presented by the Learning Periodicals Group, this series of courseware is designed for secondary science and mathematics students. The programs address basic concepts such as current, potential difference, circuits, waves and vibrations, cellular reproduction, chemical nomenclature, vernier scales, significance and rounding of numbers, etc. There are programs that provide drill, prepare tests, do data analysis, simulate experiments and assist with classroom and school administration. Each program comes with documentation packaged with the computer program in a convenient storage binder. Programs are available for use with Apple and Commodore 64 computers.

**Further education:** PO Box 267, Lindfield, NSW, 2070. Tel: (02) 467 2201.

**Enter S576 on Enquiry Card**

## Melbourne advice

McBURNIE, Little and Associates Pty Ltd is a new Melbourne company offering education and advice in production and inventory management intended as a foundation for organisations wanting to install or improve computerised production and inventory management systems. Courses are based on recent productivity studies in the US and Japan. They include the Japanese productivity techniques Just-In-Time, Zero Inventory, and Kanban. Education is available as public courses (MLA premises), private courses (MLA premises or onsite), or as customised inhouse training. Separate courses are offered for senior management, line management and personnel in stock control, or materials control.

**Further information:** McBurnie, Little and Associates Pty Ltd, 899 Whitehorse Rd, Box Hill, Vic, 3128. Tel: (03) 898 9561.

**Enter S589 on Enquiry Card**

## Lisa on loan

APPLE Computer Australia presented five Lisa and Macintosh computers to The NSW Institute of Technology's faculty of business on February 21. The faculty will use the computers to establish a "boardroom of the future". They are being made available by Apple Computer on an extended loan

basis. The institute will maintain the system and Apple will update it as necessary.

**Further information:** NSW Institute of Technology, PO Box 123, Broadway, NSW, 2007. Tel: (02) 2 0930.

**Enter S585 on Enquiry Card**

## US buys courses

A SERIES of courses developed by the Metropolitan Business College School of Computer Studies in Sydney has been adopted by five community colleges in the US. The courses are operating in Ann Arbor, Michigan, Los Angeles, Pittsburgh, Houston and Orlando, Florida. In these centres alone, the student population numbers around 280,000. The courses offered include word processing, the use of accounting packages, elementary and advanced Basic programming, financial modelling, and the implementation of a database for businessmen. The college has spent almost two years on research and about \$250,000 developing the courses. Countries in Europe and South-East Asia have also expressed interest in adopting the courses.

**Further information:** The Metropolitan Business College School of Computer Studies, 50 Bridge St, Sydney, 2000. Tel: (02) 232 7666.

**Enter S577 on Enquiry Card**

## National program

A NEW Federal committee will be established to co-ordinate the development of the National Computer Education Program in schools, with representation from all education authorities, parents organisations and the computer industry, according to a first assistant commissioner of the Commonwealth Schools Commission, Mr R. P. McNamara. The new government advisory body will formulate recommendations on the implementation of a number of broadly based national projects related to the use of computers in school curricula. Early priorities of the committee will be a hardware development project and the establishment of software standards. Distribution of the first of the \$18 million in Federal funds allocated to computer education would begin at State levels at the end of the first school term, Mr McNamara said, with information being distributed in schools telling them how to apply for funds. The initial focus will be on secondary schools, but a report shortly to be finalised by the Schools Commission, and expected to be forwarded to the Federal government

by mid-March, will detail recommendations for the extension of the activity into primary education.

## Library system

PRIMARY and secondary schools throughout Australia have decided on a national computer system to share information on their library holdings. Co-ordinated by ASCIS — the Australian Schools Catalogue Information Service — a major tender for the provision of online and batch services has been let to ACI Computer Services. The software tendered by ACI is IBM's DOBIS, an internationally implemented library management system which allows generation of catalogue cards and microfiche, and acquisitions, circulation, online searching and serials control. ACI will provide online access to DOBIS through its national network based on an IBM 3081 computer in Melbourne. This network is already used for ACI's Ausinet public database service.

**Further information:** ACI Computer Services, 57 Anzac Pde, Kensington, NSW, 2033. Tel: (02) 662 7011.

**Enter S581 on Enquiry Card**

## Microcomp training

B.S. MICROCOMP has opened a Melbourne training centre in Bourke Street near the intersection with William Street. The facility, which contains 10 fully configured IBM PCs, should strengthen the company's position as a supplier of both personal computer products and services to the corporate sector. Seminars on state-of-the-art subjects will be run as well as courses on popular products. The facilities will also be available for hire to organisations wanting to run their own courses.

The schedule of courses and seminars is almost decided. Lotus 1-2-3 will be presented in both seminar and course format. Courses will include introduction to the IBM PC, Multiplan and dBase II. Seminars will concentrate on issues such as local area networks, mainframe communications and Vision. General-purpose subjects such as business modelling, database management systems and word processing will also be addressed within a few months.

**Further information:** B.S. Microcomp Pty Ltd, 561 Bourke St, Melbourne, Vic, 3000. Tel: (03) 614 1433.

**Enter S586 on Enquiry Card**

## Washington trip

APPLE Computer Australia is finalising plans for a local competition for primary and secondary school students, featuring a first prize of a trip to the US capital, Washington, DC. Apple says local plans for the competition will be

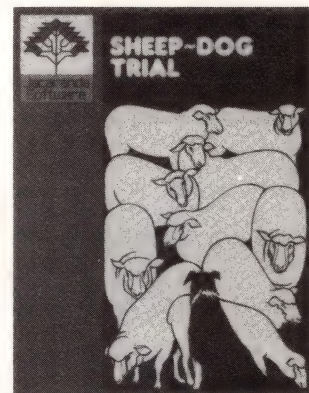
complete soon, and will be inserted in the first school kits for the new computer club program. Orders for the kits, which cost \$25, will be accepted from Australian primary and secondary schools immediately, direct from Apple Computer Australia. Each Apple Computer Club kit contains information for teachers on how to start a school computer club, suggestions for club activities, fundraising hints and publicity ideas. Once a school computer club is established, Apple will support it with a bi-monthly newsletter on the activities and achievements of club members, computer usage tips and technology-related articles.

**Further information:** Apple Computer Australia, 37 Waterloo Rd, Nth Ryde, NSW, 2113. Tel: (02) 888 5888.

**Enter S574 on Enquiry Card**

## Jacaranda Software

A NEW range of software for Australian primary and secondary schools was launched last month by Jacaranda Wiley Ltd. These packages will be Jacaranda's entry into the field of software design and publishing. A suite of four programs has been designed to complement Moving Into Maps,



the pre-atlas activity book in the Jacaranda Atlas Program. The first two disks in this suite, available from last month, are Scavenger Hunt and Sheep-Dog Trial. These programs teach students some of the basic skills of mapping and map reading. Two more programs in this suite, Quick Cartage Company and Cunning Running, will be available next month. A program has also been designed for social science courses in upper primary and secondary school. Gold-Dust Island is a simulation program for between two and five players that emphasises the need to share ideas and resources. Jacaranda Software packages are suitable for Apple II/IIe and BBC microcomputers and have a recommended retail price of \$49 each.

**Further information:** Jacaranda Wiley Ltd, 65 Park Rd, Milton, Qld, 4064. Tel: (07) 369 9755.

**Enter S580 on Enquiry Card**



# EVENTS

## Office show

**OFFICE Expo 84**, The Office Improvement Show, will be held at the Lakeside International Hotel, Canberra, on April 17-18, from 8am-10pm. More than 100 suppliers will be exhibiting. The current list of exhibitors includes Rank Xerox, IBM, 3M, AWA, Honeywell, Canon, Sharp, Toshiba, Nashua, Olivetti and Seiko, Wilbroprint, Datafile, Silver Reed, Datapage, Graphic Imports, ROS, Microsystems, Computer Enterprises, Carmen Furniture and GBC.

**Further information:** Practical Marketing Pty Ltd, 1st Flr, 48 Frenchs Rd, Willoughby, NSW 2068. Tel: (02) 958 1811.

**Enter S573 on Enquiry Card**

## Atari Enthusiasts

**ATARI Computer Enthusiasts (NSW)** is an independent, non-profit computer users group loosely affiliated with Atari Computer Enthusiasts in the US. The NSW group has no connections with Atari Inc or its Australian distributor, Futuretronics Australia Pty Ltd. Its aims include promotion of the various Atari home computer systems, instructing both beginners and advanced users in programming techniques, exchanging public domain software, hints, tips and ideas among members. The group meets on the first Monday of every month at 6pm (or second Monday on holiday weekends) in the amenities room, 7th Floor, OTC House, 32-36 Martin Place, Sydney.

**Further information:** Atari Computer Enthusiasts (NSW), GPO Box 4514, Sydney 2001.

**Enter S570 on Enquiry Card**

## Span seminars

**SPAN Australia Pty Ltd** is running the following seminars in Sydney: April 30 — Management Overview of Pick Operating System, Shore Inn Motel; May 1-4 — Pick Operating System Workshop, Shore Inn Motel; May 7-11 — Advanced Pick Workshop — Shore Inn Motel.

**Further information:** Span Australia Pty Ltd, 56-62 Berry St, Nth Sydney 2060. Tel: (02) 929 0500.

**Enter S569 on Enquiry Card**

## Residential courses

**SYDNEY** businessman Andrew Szmid has formed a company called Micro Studies to present a series of residential computer courses in association with Village Motor Inns in regional resorts in NSW as well as Sydney. The

courses already planned are each of five days' duration. The preliminary data processing concepts course held last month addressed itself to an overview of the nature of DP, characteristics and elements of DP, analysis and design of information systems, computer hardware and software concepts, programming languages, different Basics, programming techniques, computer systems and system utilities. High-Level Programming Languages: Basic/1 at Pokolbin Wine Village Motor Inn, Hunter Valley from April 1; Basic/2 at Everglades Village Motor Inn, Leura from April 29 and Basic/3 at Clairmont Village Inn, Kings Cross from June 3. All-inclusive residential course cost is \$690, tax deductible.

**Further information:** Micro Studies, PO Box 327, North Sydney, NSW, 2060. Tel: (02) 909 1120.

**Enter S571 on Enquiry Card**

## MEGS carrot

**THE Microcomputer Enthusiasts' Group of Sydney (MEGS)** will give away a 32K-byte I.C. Plus Microbee computer at the May meeting as part of a drive for new members. All people who are financial members of MEGS by 8.30pm on the day of the May meeting will be in the running. MEGS is an all-systems club, with most types of computer being represented, from small home computers to large business machines. Meetings are held in the hall at the rear of St Andrew's Presbyterian Church, 37 Anderson St, Chatswood, on the third Monday of every month, starting at 7pm.

**Further information:** MEGS Microcomputer Enthusiasts' Group, PO Box 1309, Chatswood, NSW 2067. Tel: (02) 638 1142.

**Enter S572 on Enquiry Card**

## BBC users

**THE BBC Users' Group** held its first meeting on February 16. Monthly meetings are scheduled for the first Monday of each month and are held at the Elizabeth Matriculation College in D Block (entrance off Warwick St, Hobart), starting at 8pm. The BBC Micro, distributed in Australia by Barson Computers, has been selected by several State education departments for use in school-based computer training.

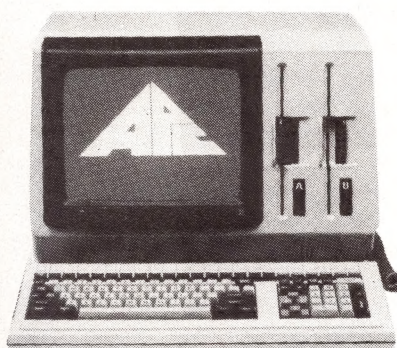
**Further information:** BBC Users' Group, PO Box 25, Nth Hobart, 7000. Tel: (002) 34 2704.

**Enter S568 on Enquiry Card**

# COMPUTER AIDED DESIGN

**ENTERCOM**  
COMPUTER CO.

# NEC



*The Advanced Personal  
Computer*

A SOPHISTICATED  
DESIGN DRAFTING  
PACKAGE STRICTLY  
FOR PROFESSIONAL  
USE IN ENGINEERING,  
ARCHITECTURE &  
SCIENCE

FOR FURTHER INFORMATION  
AND DEMONSTRATIONS BY  
APPOINTMENT ONLY CONTACT:

**DISTRIBUTORS OF APC-CAD**

**ENTERCOM**  
COMPUTER CO.

**136 BRIDGE ROAD,  
RICHMOND, VIC 3121**

**(03) 429 5883**

**(03) 428 5714**

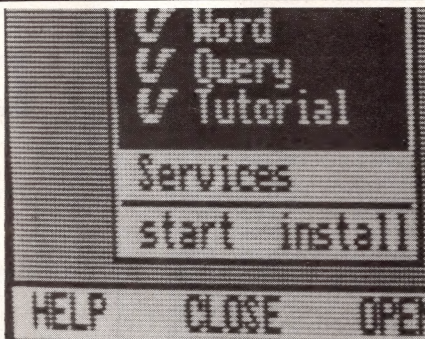
Enter S012 on Enquiry Card



# NEXT ISSUE

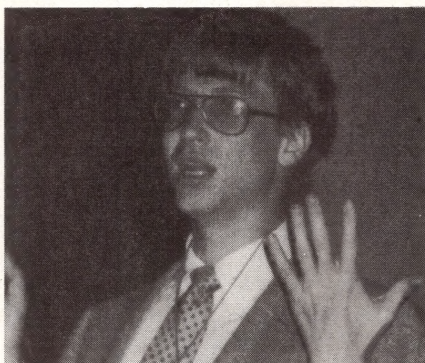
## REVIEWS

Reviews of TeleVideo's 1603 Micropro's Infostar, Abstat+, the Visi On Applications Manager and much, much more!



## BILL GATES

MICROSOFT chairman Bill Gates visited Australia during PC 84. Gates has had more influence on the microcomputer industry than any other person. He is a conceptual designer who believes in the ability of the market to create the opportunity for what is possible. Ian Webster listened to the message while Susan Coleman asked the questions.



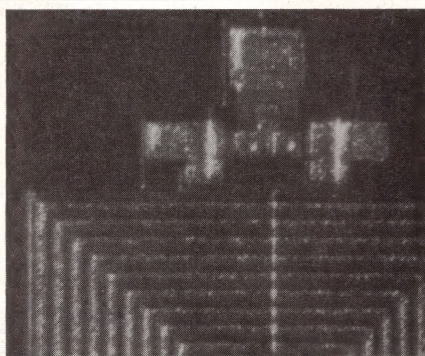
## FROM DUST TO DUST

Tony Smith chronicles the birth, rebirth, and death of several Australian microcomputer manufacturers.



## ARE COMPUTERS ALIVE?

If you have robophobia or if your best friend has just asked you around to meet the new computer, you probably already know the answer. Ian Webster reviews a new book that raises the issues.



Australian Micro Computerworld intends to publish surveys of the Australian microcomputer software and peripheral manufacturing industries as well as local microcomputer manufacturers this year. Companies interested in participating in these surveys should contact: Australian Micro Computerworld, 37 Alexander Street, Crows Nest, 2065. Tel: (02) 439 5133.

## AD INDEX

AB Office Equipment	38
A & M Computer Systems	71, 91
Anderson Digital Equipment	76
Applied Technology	8, 9
Archives Computers Aust.	7
Automation Statham	111
Barry's Office Supplies	88
Brother Industries	12
Business Scope	105
Carter & Taverner	27
Case Communications	97
Caulfield Business Computers	103
Commercial & Professional Micro Systems	117
Compak Computer Shop	42
Data Peripherals	Back cover
Data Universe	51
Entercom Computer Company	119
Fagan Microprocessor Systems	16
Future Business Systems	74
GCS Sydney	95
Home Computers	117
Imagineering	Inside front cover
Labtam Equipment Co.	93
Macpro Computers	14
Maxwell Office Equipment	75
Medair	88
Micro EDP & Hardware	89
Micro Educational	68, 69
Micromail	87
Microsoft	60, 61
Modem Technology	89
Osborne	52, 53, 54
Paperwork Systems Inc.	81
Rexel Wilson Jones	82
Roland Corp	1
SCA Software Corp.	94
Siemens	102
Software Solutions	46
Spectravideo	109
Tandy Corp.	Inside back cover
? Think Computers	107
Topology Networking	47
University Co-op Bookshop	32
Warburton Franki	35
Wait	75



# Tandy Accounting Packages Mean Total Business Control



**TRS-80 MODEL 4  
Accounting Systems  
ONLY**

**\$4498  
Plus Software**

**64K Model 4**

**Buy or Lease a System  
to Suit Your Needs**

**DMP-420**

## Now You Can Modernise Your Accounting Operations . . .

Tandy Accounting Packages have one simple goal: to increase business profitability. That means having more control over day-to-day financial information.

Tandy Accounting Packages do just that. You can monitor every aspect of your business with instant status reports from computerised general-ledger, accounts receivable and inventory control. Check Sales Rep performance and profit margins. Even monitor subsidiary companies.

## Stand Alone Programs or Integrated Systems . . .

The first step to better business is knowing what software you need now and when to buy more. That's why Tandy Accounting programs can be bought individually or as an integrated system.

Start with one program to meet your requirements and budget. Then build-up to an impressive integrated system.

Your nearest Tandy computer representative is on hand to provide the objective answers to your questions and to supply you with the package you need.

## Easy to Use Programs . . . Australian Designed. . .

All programs are "user-friendly" so they can be operated by first-time and experienced users. Each is designed to Australian specifications for easy familiarisation.

## Tandy Accounting Packages for Use With TRS-80 Model 4 Microcomputer

- |  |                   |               |
|--|-------------------|---------------|
| <b>1. Accounts Receivable</b>                      | 26-9610 . . . . . | <b>499.00</b> |
| <b>2. Inventory Control</b>                        | 26-9611 . . . . . | <b>499.00</b> |
| <b>3. General Ledger</b>                           | 26-9612 . . . . . | <b>499.00</b> |
| <b>4. General Ledger &amp; Accounts Receivable</b> | 26-9613 . . . . . | <b>999.00</b> |
| <b>5. Letter Writing</b>                           | 26-9616 . . . . . | <b>349.00</b> |
| <b>6. Multi Company</b>                            | 26-9617 . . . . . | <b>649.00</b> |

# **Tandy** **COMPUTER CENTRE**

A DIVISION OF TANDY AUSTRALIA LIMITED  
INC. IN N.S.W.

**See The Yellow Pages Telephone Directory  
For Your Nearest Computer Centre.**

Enter S014 on Enquiry Card





## PICK UP ON THE PORTABLE BOOM.

The TeleVideo® Portable Computer best equips the professional who's going places. Because our innovative design produces a full-function portable that also plugs into an office network. To become an additional work station that's compatible with our desktop computer line.

The TeleVideo Portable has a double-sided, double-density 5¼-inch floppy disk drive and a 9-inch, non-glare yellow phosphor screen displaying 24 lines of 80 characters. The ergonomically designed keyboard includes a ten-key accounting pad not normally available with a portable. And this sensibly-priced portable comes complete with CP/M® operating system and standard business graphics.

Get the power and convenience of a portable that communicates with a computer network. Get in on the boom.

For more information, contact one of our international distributors:

DATA PERIPHERALS PTY, LTD. (NORTH RYDE),  
(02)888-5733; Victoria (Melbourne) (03)598-5111;  
Queensland (Brisbane) (07)44-8943  
DATA PERIPHERALS PTY, LTD. NEW ZEALAND  
(AUCKLAND), (9)491-303



# TeleVideo Personal Computers

 TeleVideo Systems, Inc.

TeleVideo computer systems are fully serviced by our network of international distributors.  
CP/M is a registered trademark of Digital Research, Inc.

Enter S024 on Enquiry Card